consumer
electronics

ce Lifestyles

ceLifestyles.com

Bring The **Big Screen** Home

Snap The **Perfect Picture** With Our
Five Lighting Tips

TV On Your Time: DVRs Explained

CREATIVE®

Z E N
M I C R O

2500 songs

5 GB

° Actual Size

The power of Z E N

° Micro-sized MP3 player ° Mesmerizing blue glow ° Curved to fit in the palm of your hand

° Up to 12-hour battery life on a single charge ° Removable battery to extend playtime another 12 hours

° FM radio ° Voice recorder ° Intuitive vertical touch pad control

° Access over 2 million songs through Zen supported online music services

msn music

playsforsure
Windows Media
Audio

us.creative.com/zenmicro

The color of Z E N

Home Automation for Real People

With Control4, you can finally stop using "home automation" and "when I win the lottery" in the same sentence. That's because we offer a more practical approach for automating and simplifying all the different technology in your home—from lighting, temperature, and security systems to sophisticated home theater centers. Every Control4 solution is easy to install in new or existing homes, a pleasure to use, and surprisingly affordable. So visit our Web site to find an authorized Control4 dealer near you. And discover exactly how easy and inexpensive home automation can be.

www.control4.com • 1-888-400-4070

Control 4®

consumer electronics
CE Lifestyles

ceLifestyles.com

lifestyle close-up

Flat-Panel TVs

Big-screen TVs are the kings and queens of consumer electronics, combining size, function, and features into one dramatic statement for your living room. Right now, they are hotter than ever, thanks to the sleek and striking flat-panel LCD and plasma sets that have, for the most part, replaced the big black boxes of older rear-projection sets.

Open

There's always something new, interesting, and stylish happening in the world of consumer electronics. That's why the Open section packs the latest news and trends into the first few pages of *CE Lifestyles*, along with the sparkle and bling that you can buy to accessorize your devices.

A/V Club

Some of our favorite electronic gadgets are the ones that provide the sounds and pictures that move and entertain us and our friends and family. Whether you want to put together a wireless audio system for your home or just want help using the plasma TV in your living room, A/V Club can help.

Digital Studio

Digital cameras and camcorders are changing the way we record the moments of our lives, from quick snapshots of favorite vacation spots to priceless video clips of first steps and other important milestones. Get to know your new digicam or camcorder and learn what to do with your photos and video once you have them.

Great theater deserves a great setting.

At first look you are awestruck by the beauty of Sanus Component Furniture. And when you investigate deeper you see the strength of aluminum pillars blended with the character of solid hardwoods and unique features like tempered glass shelves and a wire management system. Component Furniture includes cabinets, armoires and digital TV stands that configure to your exact needs. Add the Sanus Convection Cooling System that allows air to flow around heat-generating A/V gear like a cooling canyon breeze and you have Component Furniture that echoes of quality and performance.

SANUS | SYSTEMS

THE UNION OF FORM AND FUNCTION

800.359.5520   www.sanus.com

CE @Home

The consumer electronics in our homes are no longer limited to TVs and DVD players. Smart appliances, home automation, and whole-house audio systems are becoming more and more common and affordable for families, and with so much available, why check CE at the door?

CE Lite

Most CE devices are all about fun. Here, we'll tell you about the latest albums and films to catch, so you can make sure your entertainment is as up-to-date as your gear. And so as not to forget our roots, "Retroscope" traces how a favorite CE device has changed over the years.
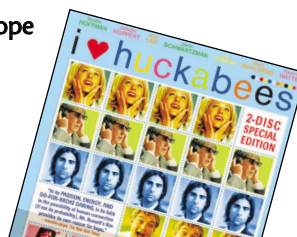
Editor's Note

The evening before my husband and I were married, we threw a party for our family and friends at a quaint little Mexican restaurant. A delightful mariachi band played, and the wonderful music, combined with the anticipation of the following day, the delicious food, and the flowing drink made the evening truly memorable for everyone. One moment was especially touching for me, when the charming mariachis played and sang us a special old Spanish song called "Angelito." That song was so beautiful and played so graciously, and it embodied the evening so perfectly, that I clearly recall thinking, "I will remember this for the rest of my life."

Just yesterday, I was writing the music section for our "Music & Movies" article (page 102), and, as I skipped through Herb Alpert & The Tijuana Brass' remastered album "South Of The Border," I heard the first few trumpet notes of number nine. You guessed it: It was Alpert's version of "Angelito," and (I'm not joking here) the powerful wave of emotion and memories that song produced made my eyes tear a little.

Technology is far from existing as a cold and separating ogre that leads to personal disconnect in our lives. It can be, sure. But the emotions I felt, sitting in front of my laptop, wearing my earphones, and listening to that CD, were almost as real and poignant as what I felt that night. Technology brought that to me, just as it can bring families and friends together to relive really wonderful times in our lives. We can do that through video or pictures or songs, or in the simple act of gathering together to watch a film or listen to good music over wine and dinner. It's no wonder we love outfitting our homes and our lives with such devices! The technology we use every day contributes to good living in the most surprising and unexpected ways.

Live well, friends.

Katie Sommer
Publication Editor, *CE Lifestyles*
katie-sommer@celifestyles.com

ce news

BY TRACY BAKER

What's Ahead In 2005?

Another year, another Consumer Electronics Show. This annual Las Vegas trade show brought 140,000 attendees from 115 countries in January. Although there were enough products to fill this magazine for several decades, some trends emerged that'll define consumer electronics in 2005.

If you haven't heard the phrase "Media Center" yet, prepare to be barraged in the coming months. These products use a special version of Windows XP, called Windows Media Center. It's designed for multimedia content, such as movies and music, and gives users easy access to those files. Some Media Center PCs let you do this from your desktop, but more and more Media Center products integrate with home theater setups so you may enjoy your movies and music from your living room.

Media Center devices use home networks to operate, and network connectivity is standard-issue in the consumer products of the near future. Whether the devices use wireless Ethernet connections, as a computer does, or another standard, such as Bluetooth, many upcoming consumer-electronics devices will communicate with the other electronics in your house. Because interconnectivity exposes various files and media, many products will handle a staggering number of formats. The upcoming Pioneer DV-588A DVD player, for example, plays nearly every type of CD and DVD made today, including DVD-Audio, DVD movie, Super Audio CD, DVD-R, and DVD-RW; the player reads myriad audio and video files including movies encoded in the popular DivX format that you can download from the Internet.

And speaking of DVD technology, several companies showed off next-generation high-definition DVD players at CES that can play upcoming Blu-ray Disc and HD-DVDs. As noted in previous "CE News" articles, these discs store high-definition content that has many times more detail and fidelity than a standard DVD, and users may be able to pick sides in the upcoming standards war between the two formats by the end of the year.

Unleash Your MP3 Player With Altec Lansing's iM4

If you have a digital music player other than an iPod, but you've longed to enjoy Altec Lansing's iPod speakers, your wish has come true. Altec Lansing recently unveiled the inMotion iM4 ($99.95; www.alteclansing.com), a sleek, external stereo setup for the three of us who don't have Apple's music player.

The speaker setup is small, measuring only 10 inches wide x 5 inches tall when folded up for traveling. Speakers on either side swivel into place, leaving a rubber-coated platform in the middle where your MP3 player can sit and pump tunes to the system via a retractable cable built into the device. The speaker setup runs on AC power (an international power plug set is included) or on four AA batteries for easy use wherever you happen to be.

for the
woman
with
connections

Apple Downsizes

Smaller is apparently better at Apple, which recently unveiled both the Mac mini computer and the iPod shuffle digital music player. So what's a computer announcement doing in a consumer electronics magazine? Well, the Mac mini is small enough, powerful enough, and inexpensive enough to have a lot of potential to serve as the hub of a multimedia setup, much like Media Center devices do. If the right people make the right software, that miniscule Mac may end up in your living room instead of in your office.

The iPod shuffle is definitely a consumer electronics product and is a step down from the company's insanely popular iPod mini in terms of both size (3.3 inches long x 0.98 inches wide x 0.33 inches deep) and storage capacity. The 512MB and 1GB models available now only store a few hundred songs, and there's no display to let you know what tracks are playing or to help manage your music, but that's where the "shuffle" part comes in. The little device serves up a completely random mix of tracks that never play in the same order twice. If you want more control, you can create playlists on your computer, download them to the shuffle, and play the songs in the order established by the playlist. Apple claims the rechargeable batteries can power the device for up to 12 hours, and because it uses no moving parts, it's suitable to use while you're running, biking, or engaging in any other activity.

More Speakers = Better Sound

It's too soon to tell which high-definition DVD standard will prevail (Blu-ray Disc or HD-DVD), but HD-DVD has at least one bit of technology in its favor—the adoption of Dolby Digital Plus as its standard audio format. If you have a surround-sound setup in your home theater, you're likely familiar with Dolby Digital, which sends separate audio streams to up to five speakers (plus a subwoofer) enveloping listeners in a field of diverse sounds. Dolby Digital Plus, demonstrated at CES 2005, takes this several steps further, sending separate audio streams to from seven to a whopping 14 speakers, to create an even more convincing surround-sound effect. Of course, it remains to be seen if Hollywood studios, TV broadcasters, and audio mixers will create soundtracks that can take advantage of that many speakers, but at least the capability now exists.

Neat Receipts

Entering receipts into your money management program by hand is fairly tedious, but NeatReceipts (www.neatreceipts.com) has a new product that'll speed up the process. Its eponymous scanner connects to a PC and reads information from the receipts you feed it, automatically translating the written information into computer text. Included software integrates with most financial software, including Quicken, QuickBooks, and Peachtree, and it automatically enters the data in the appropriate spots. The program also saves pictures of the receipts, so you can double-check the product's work even if the original receipt is lost or destroyed. Now, if it could just magically make those credit card statements disappear.

m a r k e t p l a c e
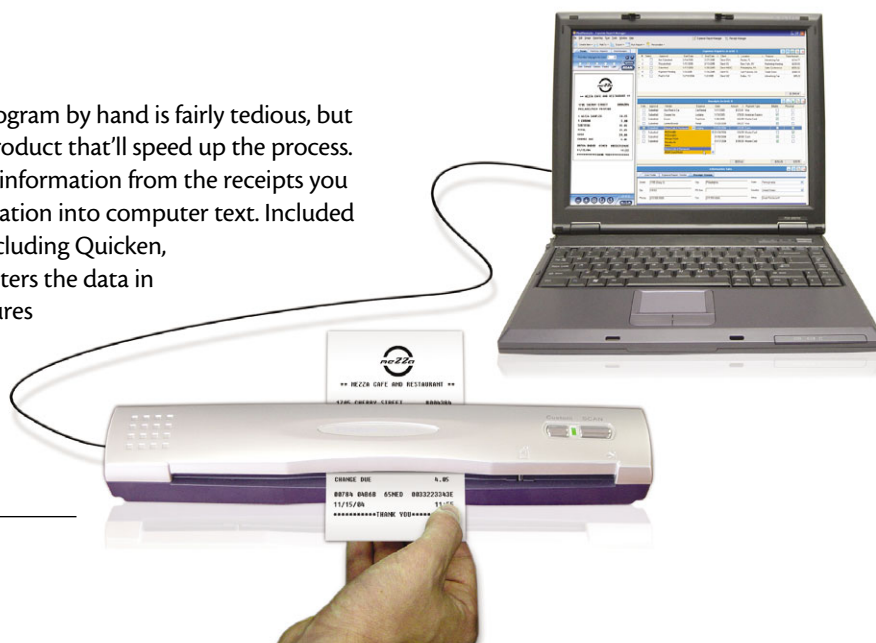
Lose Your Phone? Call The Cab Company (If You Can)

OK, nothing can top the U.K. cab driver who reports that a passenger left a baby in his backseat, but a recent survey of 900 taxi drivers worldwide indicates that we leave an obscene number of electronic devices behind when we arrive at our destination. Highlights include:

In Chicago alone, one cab company collected 85,619 cell phones, 21,640 PDAs, and 4,425 laptops in just six months—an average of 3.42 cell phones, 0.86 PDAs, and 0.18 laptops lost *per cab*.

In London in 2004, 71% more notebook PCs and 350% more PDAs were left in cabs than was the case in 2001 when a similar survey was conducted.

Globally, 80% of all people who lost cell phones and 96% of all people who lost PDAs eventually recovered the devices—often thanks to the cabbie tracking them down. Australia dragged down the overall averages, with only 46% of passengers reclaiming cell phones and 18% getting back their notebook computers.
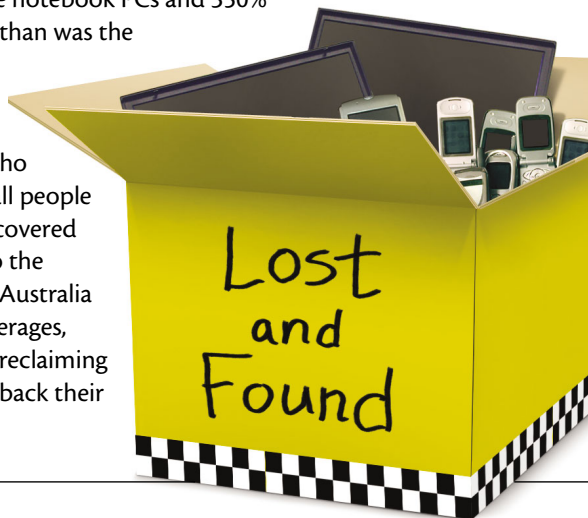
Source: Pointsec Mobile Technologies

OnStar For Everyone

Formerly a high-end option found only on certain vehicles, GM has announced that all cars, trucks, and SUVs it sells in model year 2007 will have OnStar equipped as a standard feature. OnStar uses satellites to monitor vehicles where the hardware is equipped: When the system detects an emergency or the airbags deploy, an alarm triggers a call to an OnStar switchboard. And it isn't just good for safety. Locked your keys in the car? One call triggers a remote unlock that will let you retain at least a little bit of dignity. OnStar currently has more than 3 million subscribers, paying monthly fees between $16.95 and $69.99 depending on the service plan. In December 2004, the service logged the following statistics:

450 stolen vehicle locations
900 air bag notifications
4,000 Good Samaritan calls
12,000 emergency calls
24,000 remote vehicle diagnostics
20,000 roadside assistance calls
38,000 remote door unlocks
319,000 routing calls
6,900,000 OPC (OnStar Personal Calling) Calls

tidbits

2010

Compared to 2001, consumer electronics devices will demand eight times the amount of battery power in 2010, but battery capacities are only expected to double by then.
Source: Boston Consulting Group

Only **8.4%** of Americans have or plan to buy a DVR (digital video recorder), such as a TiVo. So which city has the most DVR owners? Big cities such as L.A. and Miami trail, of all places, Yuma, Ariz.
Source: SimmonsLOCAL 2004 Study

Watch out Netflix: Wal-Mart (www.walmart.com) recently dropped the subscription price of its online DVD rental service to $12.97 per month.
Source: Wal-Mart

$12.97

Only **24%** of Americans pay off their credit cards each month.
Source: SimmonsLOCAL 2004 Study

Flat is in: **38%** of the 7.2 million digital televisions that shipped in 2004 used flat-panel technology, such as plasma or LCD (liquid-crystal display), despite their higher prices.
Source: CEA

It took more than **1.5** million square feet of space to house all of the booths at this year's CES (Consumer Electronics Show), which had more than 2,500 exhibitors.
Source: CEA

COMPILED BY GREG ANDERSON

shelf watch

Style and sub-stance. It's the best of both worlds. These new products deliver easy-to-use function-ality, and you won't have to worry about how they look on the shelf.

Elgato EyeTV Wonder USB 2.0

$149

www.elgato.com

Want to use that beautiful new Mac for something other than crunching numbers and surfing the Web? Elgato's EyeTV Wonder turns your Macintosh into a multimedia TV complete with programming guide and recording capability. Just plug the device into your OS X system's USB 2.0 port, install the software, and kick back with a tub of popcorn.

Apple iPod shuffle

$149

www.apple.com

If you need to carry "only" 240 songs at a time, check out Apple's latest iPod. The tiny 1GB shuffle combines Apple's delightful aesthetics and in-tuitive controls. Transfer files to and from your PC or Mac with the USB plug or let iTunes Autofill the shuffle from specific Playlists. The 512MB version is $50 cheaper, but why limit your possibilities?

open

JBL Encounter 2.1

$199.95

www.harman-multimedia.com

Give voice to portable music players or upgrade weak computer speakers with the latest in JBL's innovative speaker designs. The 2.1-channel system (two satellites and a subwoofer) connects to any music player, CD player, or computer with standard headphone or speaker jacks. Touch-sensitive volume controls and volume memory make listening even easier.
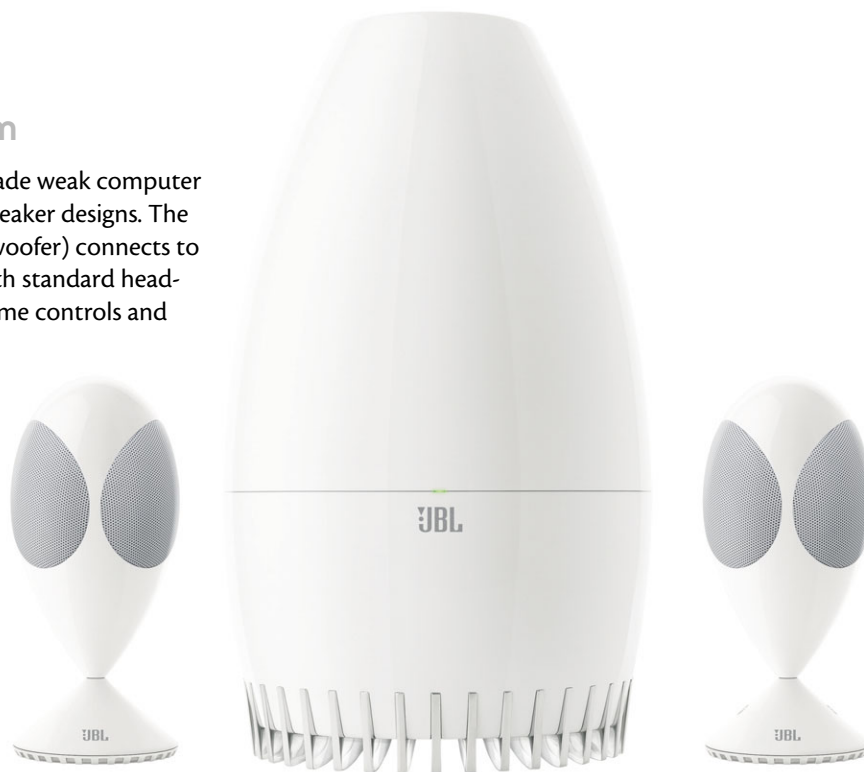
Konica Minolta DiMAGE X50

$399

www.konicaminolta.com/dimage

Konica Minolta's slim new 5MP (megapixel) is more than just a pretty face. It's fast too—ready to shoot in about one-half of a second. Whether your subject is far away (2.8X optical zoom) or close by (2.4-inch macro mode), you won't miss a thing.

YOUR LIFE...TO GO.

Attaché. Fashionable. Portable. Unforgettable.

PNY TECHNOLOGIES

Attaché™

Portable mini-storage device. Mega bytes.

Check us out at www.pny.com/cel

Let our memory capture your memories.™

© 2003 PNY Technologies, Inc. PNY and the PNY logo are registered trademarks of PNY Technologies, Inc.

open

Pioneer XW-HT1

$250

www.pioneerelectronics.com

If the idea of wires crisscrossing your family room has prevented you from adding surround speakers to your home theater, take a look at Pioneer's XW-HT1. A wireless transmitter takes signals from your TV, DVD player, or existing AV receiver at the front of the room and sends them to the powered wireless speaker at the back of the room, reproducing both left- and right-rear channels.

Nokia 9300

$800

www.nokia.com

Nokia proves you can't judge a phone by its cover. Keep the 9300 closed for use as a small and attractive mobile phone. Open the front to reveal a complete keyboard and full-color screen for use as a PDA, email device, and portable Web browser.

Motorola Ojo

$799.99

www.motorola.com/ojo

Predictions of imminent videophone conversations with friends and loved ones have come and gone for decades, but broadband connections may change all that. Motorola's Ojo (pronounced Oh-Joe) uses your cable or DSL connection and your phone line to make TV-quality video calls on the 7-inch screen. Is it finally time?

Either
you're

innovating

or
you're

imitating.

Introducing Denon's New AVR-5805
The World's First 10-channel A/V Receiver With Fully Configurable 4-zone Capabilities

A Breakthrough In Multi-source, Multi-zone Flexibility

For the home entertainment enthusiast and custom installer alike, Denon's new AVR-5805 delivers unprecedented four-zone home entertainment integration and control — all from a single component. With 10 configurable and discrete amplifiers, 16-channels of audio output, and the world's first-ever ability to drive two fully independent 5.1 systems, the AVR-5805 will also route audio and video signals from up to four independent sources and distribute them to up to four separate zones throughout the home. Its advanced capabilities even allow discrete power, source selection and volume control of each zone. And flexibility is just the beginning. Read on.

Masterful Technologies And A "Sweet Spot" For Every Listener

Behind the AVR-5805's newly designed, easy-to-read front panel display is a profusion of powerful technologies. An Equal Power amplifier section delivers a massive 170 watts of high-current power into each of its ten channels, processing for every popular 7.1-, 6.1- and 5.1-channel surround sound format — from Dolby (including Pro Logic IIx) and dts, to THX Ultra2 and THX Surround EX. The AVR-5805 also introduces the latest in Auto Setup Calibration and Equalization with the Audyssey MultEQ$_{XT}$ system, tailoring sound not only to the listening environment but also to the audience. This advanced technology analyzes and calibrates six critical settings including variable crossover point detection. It also determines the correct frequency response for up to six separate listener positions and then averages all six. The result? Literally a "sweet spot" for every listener in the room.

MASTER VOLUME

This is innovation.

USER MODE
1 2 3

AV SURROUND RECEIVER AVR-5805

Advanced Video Conversion And Denon's Exclusive Circuitry
The AVR-5805 offers a full complement of advanced processing capabilities like HDMI/DVI digital video selection, video up-scaling (including Faroudja DCDi technology for analog sources) and the world's first dual, independent video conversion for unmatched simplicity and the highest picture quality from all your video gear. For even greater A/V performance, it employs the most advanced Texas Instruments' and Analog Devices' 32-bit DSP processors, Burr-Brown 24-bit/192kHz audio DACs, as well as Denon's newly improved DDSC-D (Dynamic Discrete Surround Decoder-Digital). And to top it off, exclusive Advanced AL24 Processing Plus circuitry maximizes all source signals so that the high-resolution DA converters work at peak capacity.

More Connection Options Than Any Receiver In The Industry
In addition to an extensive complement of digital and analog A/V connections, the AVR-5805 includes a full array of "custom installation" features: assignable high amperage DC trigger outputs, dual RS-232C ports to facilitate integrated system and PC connectivity, and a built-in Ethernet port that adds more system control as well as future updates and upgrades. In-demand connection options include 6 high-bandwidth (100 MHz,) HDTV-compatible component video inputs, HD switching for 2 zones and much more. Finally, the latest version of Denon Link 3 and dual IEEE-1394 inputs allow for reception of high-resolution, multi-channel digital audio data directly from compatibly equipped DVD players. It all adds up to total flexibility and the ultimate level of sonic performance. Denon does it again.

DENON
The First Name in Digital Audio

open

outfit your life

Accessories With Style

Spring into spring with a sharper image.

COMPILED BY SEAN DOOLITTLE

Covertec Palm Tungsten T3 Case
$29.95 to $39.95 • www.covertec.com

Your Palm will feel better in your palm when wrapped in this custom leather carrier. It's sleek and soft, with visible overstitches, a magnetic latch, and compartments for credit cards and memory sticks. You can get it in black, red, or tan.

Durango Leather Works Laptop Shuttle
$175 • www.ebags.com

According to Product Design Manager Bernard Majeu, "We created the Durango Leather Works collection to bring back a style reminiscent of a more relaxed era. A simpler time." We feel more relaxed just looking at it. Crafted in mocha and tan and fully lined with a padded bottom and sides.

Pacific Digital USB MemoryFrame
$249 (5 x 7 inch) • www.pacificdigital.com

Download your precious moments directly from your digital camera into Pacific Digital's MemoryFrame and display them on your desk, wall, bookshelf, or anywhere else you please. No PC necessary. No printer required. Download multiple photos and run a slideshow. Also available in an 8- x 10-inch frame and 8- x 10-inch wireless frame.

TEC Windshirt
$39.99 • www.scottevest.com

There's no better way to face that chilly April morning run than with Scott eVest's TEC Windshirt. Constructed of lightweight nylon and lined with performance mesh, the Windshirt incorporates Scott's patent-pending PAN (personal-area network), plus three hidden pockets for your keys and ID, iPod, water bottle, candy bars, a canister of pepper spray, or whatever gets you through the jog.

Experience television in a whole new light.

Philips flat TV with Ambilight. Turn on any flat TV from Philips with Ambient Light Technology, and watch what happens. Your eyes see more than what's on the screen, as color and light expand beyond the frame and onto the walls. You bask in the warm glow of the background lighting that automatically changes color and intensity to reduce eye strain and provide a more relaxed viewing environment. And with Pixel Plus™ 2, you experience the detail and vivid colors that are as close to real life as you can get. For a deeper view of the entire Philips Flat TV™ line, featuring Ambient Light Technology, check out www.flattv.philips.com. It's unlike anything you've ever seen before.

www.flattv.philips.com

PHILIPS

sense **and** simplicity

ambi light

PIXEL PLUS 2

TV On Your Time

DVR Popularity Continues To Grow

Great commercials are flashes of brilliance in a typically dull landscape. Many TV viewers would prefer to dispense with marketing altogether—and wherever there's a will, technologists find a way. That way is the DVR (digital video recorder, or PVR [personal video recorder]), a worthy successor to the VCR, a device that changed the way many watched TV.

Here, we'll tell you exactly what you're missing if you don't already own a DVR. TiVo (www.tivo.com) continues to dominate the industry, so we'll be mentioning the company quite a bit, along with ReplayTV (www.replaytv .com; TiVo's challenger for standalone units) and a selection of cable-, satellite-, and PC-based DVR services. The features we describe are widely applicable but may not be available on all DVRs. Check with your preferred service provider to see what features each of its models has.

You Are In Control

Now, what can you do with a DVR that you can't already do with your VCR? Here are a few options:

Tame live television. By saving the video stream to memory as it comes over the air, the DVR blurs the lines between TV and recorded video. Nature calling? Pause "Survivor." Baby distracting you from the final seconds of your favorite soap opera? Push the Instant Replay button to see what you missed. You can keep track of what's going on by glancing at the indicator at the bottom of your screen that shows the relationship among the live TV signal, the point in the video stream you're currently watching, and the beginning and end of any recordings you're making. And, of course, fast-forward through commercials after you've paused long enough to let the real-time television stream get a few minutes ahead of you.

Several years ago, ReplayTV's Automatic Commercial Advance sliced through commercials, but lawsuits leveled against Sonicblue (which formerly owned ReplayTV) alleging copyright infringement led to the voluntary removal of this popular feature. Today we use QuickSkip (a feature that lets ReplayTV consumers skip parts of a recorded program in 30-second increments). TiVo models include Overshoot Correction, which backs up the video a few seconds after you press Play to account for reaction time.

Record anything. Although many use the DVR to avoid advertisements, the foundation of the DVR concept is still the ability to record shows and watch them later, like you can with a VCR. A VCR's recording capacity (a few hours) is that of a VHS tape with low video quality. DVRs' recording capacities, however, start at around 35 hours and top out at around 320 hours on the lowest quality setting (comparable to VHS). Higher-quality settings provide less capacity. Many DVRs can also record two shows at once.

By dialing the home office via modem (a local call, usually, but verify with your phone service) or over your broadband connection, your DVR updates its programming guide, foretelling content anywhere from three to 14 days in advance. The guide on your DVR is interactive and user-friendly, so you can likely search by genre, browse for your favorite actor, or create playlists that include only your favorite channels. TiVo subscribers get the Season Pass feature, which records every episode of a show playing at any time, on any channel, and it can skip repeats. (ReplayTV has a similar feature.)

Most DVRs permit remote programming by letting you log in to your account online to tell your unit to record what you forgot. On ReplayTV units, you have to do this a day in advance. With TiVo, you can schedule a recording online with as little as an hour before the show airs if your TiVo connects via broadband.

Archive to DVD. A useful solution, particularly for those who want to archive collections of favorite movies or shows for long-term storage, is a DVR/DVD burner unit. Without one, you may still be able to route video from your TV to your PC

Satellite Dish Or Cable Line

Cable Box/Satellite Receiver

DVR 1

Season Pass Manager
Press SELECT to edit a Season Pass. Use RIGHT to change the Season Pass priority (by moving it UP or DOWN in the list). A higher priority pass will be recorded if there is a conflict with a lower one.
1. Alias (ABC7)
2. The Daily Show With Jon Stewart (Com...)
3. American Idol (FOX)
4. FORD, HARRISON
5. Biography (A&EP)

A TV signal comes in over your satellite dish, cable line, or rabbit ears. Most satellite receivers and many cable boxes have multiple tuners, which let you record more than one show at a time or view one show while you record another.

Broadband

The DVR logs in or dials up the home server several times a day to update the EPG (Electronic Programming Guide). Most units also check your online DVR account to see if you've scheduled any recording requests over the Internet.

Phone Line (Modem)

DVR 2

DVRs 1 and 2 can talk to each other wirelessly (or not) over the home network, sharing recorded programming and avoiding recording conflicts.

Hooked up to a PC, DVR 2 can display photos or videos or pipe MP3s through the TV and associated sound system.

for DVD burning there, but if you're going this route, you should consider a total PC-based solution, below. The Humax DRT800 ($499.99; www.humaxusa.com), Pioneer DVR-810H ($1,199; www.pioneer electronics.com), and Toshiba RS-TX60 ($699.99; www.toshiba.com) are all robust offerings in this category.

DVR Types

We can break DVRs into three categories: standalone boxes, satellite or cable company boxes (for subscribers only), and PC-based solutions. Here's a look at each.

Standalone boxes. TiVo's impressive rise is due partly to an ultra-hip brand name and partly to a great set of features. TiVo's WishList expands on the Season Pass idea by letting you record all shows that meet certain criteria—shows about wildlife, celebrities, or gourmet cooking. With Home Media features enabled and your DVR linked to your PC via USB, you can easily play your PC's MP3s and videos on your TiVo-linked television. If you have more than one TiVo box, you can record on one TiVo and watch that recording on the TV hooked to the other. TiVo Basic service is free but does

additional units) or $299 (a one-time fee that is good for the life of the hardware).

TiVo's standalone rival, ReplayTV, offers pretty much the same functionality for the same service price ($12.95 per month or $299 for a one-time fee), and its 5504 model with 40 hours of recording capacity is $149.99.

A theme-based ReplayTV channel is similar to TiVo's WishList. ReplayTV gets points for pausing your live TV show for as long as there's room on the hard drive (compared to TiVo's 30-minute max), the customizable Show Organizer filing system, and progressive-scan output in ReplayTV's 5500 series, which produces a higher-quality picture on compatible TVs.

Satellite and cable DVRs. Many satellite and cable companies sell their own DVRs, normally discounted in various promotions. For example, DirecTV (www.directv.com) will sell you a 40GB drive for $99. DirecTV boxes run TiVo, but you only pay $4.99 a month (instead of $12.95). DishNetwork (www.dishnet work.com) offers a number of promotions through retail outlets. Comcast Cable (www.comcast.com) leases DVR

TiVo's logo has become a well-known symbol among prospective DVR owners as DVR use continues to gain in popularity.

graphics cards and Hauppauge's (www .hauppauge.com) WinTV cards are TV tuners with DVR functionality for around $99 to $299. Also consider a Windows XP Media Center Edition rig (most around $1,200 to $2,000). The WinXP MCE is a DVR, jukebox, photo album, and more, and it will work with most or all of your existing receivers and TVs (it may already include a TV tuner card).

Standalone DVRs such as the TiVo Series2 and ReplayTV 5500 series compete with cable-, satellite-, and PC-based DVRs.

not include Season Pass, Home Media, or some other perks. More importantly, TiVo Basic is simply not available with most hardware.

A TiVo Series2 DVR, the company's most popular box, is $199.99 for around 40 hours of recording time. TiVo Plus, to which many subscribe, costs $12.95 per month (with $6.95 per month for

service in most areas; check with your local provider for specific rates.

PC-based DVRs. Turning your PC into a DVR gives you flexibility to upgrade your system over time. Snapstream's Beyond TV ($69.99; www.snapstream.com) is a popular software option (TV tuner [approximately $100 to $200] not included). ATI's (www.ati.com) All-In-Wonder

Is A DVR Right For You?

DVR technology is an addictive consumer electronics craze, but before you subscribe to a DVR service, weigh the advantages against the drawbacks. After all, DVR dependency means you could miss out on a lot of great used-car commercials. ◎

BY RYAN TURNER

Cordless? Cellular? Both please.

THE BLUETOOTH ENABLED CORDLESS

Home phone meets cell phone—together at last. With Uniden's new Bluetooth enabled Digital 5.8 GHz Cordless Phone, now you can use your land line for crystal-clear communications anywhere in the house, or tap into your cell phone minutes to take advantage of free long distance.* The Digital 5.8 GHz Cordless

THE PERFECT BALANCE OF DESIGN AND PERFORMANCE

also features slim styling and all the features you love, like a full-color LCD display, recordable ring tones,

UP TO 10 HANDSETS, ONE PHONE JACK

downloadable background pictures, handset-to-handset text messaging and an optional wireless Bluetooth headset. All models also come standard with up to 10 handset capability from a single base unit, advanced phonebook features, caller ID, handset speakerphone and a whole lot more. This advanced cordless is even backward compatible with other Uniden Digital 5.8 GHz expandable phones. Now you can get the best of both worlds. Visit us at **www.uniden.com.**

Bluetooth®
HEADSET READY

Uniden®
A World Without Wires

Sony KDF-42WE655: how-tos

Sony KDF-42WE655
$2,499.99
www.sonystyle.com

Sony's KDF-42WE655 has a sleek look that complements any home theater system, but it needs a few adjustments if you want the picture to look as good as the frame.

It's alarming if you turn on your TV and nothing appears on the screen, but this is normal for this model. This delay can last up to a minute. The TV's lamp that projects the video needs to warm up, and when you turn the TV off after an extended period of time, the lamp must cool down before you can turn it on again. This is a drawback of all projector TVs, not just this model.

Video & Audio Connections

The KDF-42WE655 has several jacks on the back, and knowing which ones to use for your video and audio devices can make a world of difference in video and sound quality.

The yellow jacks are composite video ports, and although that connection type is compatible with the widest variety of products, video quality is low. The only connection that produces lower-quality video is a cable from the wall outlet plugged directly into a cable jack.

To move up a step in quality, use the black S-Video jacks above the composite jacks, if possible, whenever you connect a video device to inputs 1, 2, 3, or 4. For a dramatic quality improvement, however, we recommend using the green (Y), blue (Pb), and red (Pr) component inputs, or the digital HDMI (High-Definition Multimedia Interface) input. Most DVD players and high-definition cable boxes support component video output; and if you have a video device that outputs a progressive-scan signal (the feature will be labeled prominently in the product's users manual) or a high-definition signal, the component inputs are the only analog inputs that can handle those types of signals. The HDMI port also accepts progressive-scan and high-definition signals, but in digital format, which is the perfect match for this digital television. If you have a high-definition cable box that supports HDMI, use that connection instead of the component video connection for the ultimate in video quality.

Each set of video inputs also has its own associated analog stereo audio inputs, which are white (left channel) and red (right channel). The red component video jacks are located adjacent to the white audio jacks, so be careful not to accidentally connect the speaker jack to the red component video port.

Neutral (left), Warm (bottom-left), and Cool (below) color settings make the TV's picture appear normal, reddish, or bluish, respectively.

A set of stereo jacks labeled Audio Out (Var/Fix) let you feed stereo audio from the TV to your external stereo by connecting left and right analog stereo speaker wires from the outputs on the TV to inputs on the back of the stereo. You can then use the remote control to select Fixed or Variable output. Fixed output sends a set volume level of audio to the stereo so volume is controlled via the stereo. Variable output lets you set the stereo to a fixed volume and then adjust the overall volume level using the television's volume control.

To set stereo audio, press Menu on the TV's remote control, use the arrow buttons to highlight the Audio entry, press the button in the middle marked with a large cross, and press the Down button to highlight Speaker. Press the Right button to select Off (turning the TV's speakers off) and press the Up button to highlight the Audio Out entry. Now

press the Left or Right button to select whichever option is more convenient based on how often you use each device's remote control.

Picture & Sound Adjustments

Now that you have connected the devices, you can adjust the television's video to make everything look picture perfect. The TV keeps a separate memory for each input, so if your cable box is connected to the HDMI port and your DVD player is connected to one of the component video jacks, for example, you can adjust both inputs separately so video from each device looks its best.

One of the benefits of LCD technology is that it's all digital, so video is always rendered with completely straight horizontal and vertical lines. That means the only adjustments you need to

focus on are color output, contrast, and brightness.

First, adjust the overall tone of the picture. Press Menu on the remote control, highlight the Video entry, and press Enter. Select Mode and choose either Standard or Pro, depending on what looks best to you with the equipment attached to that input. Vivid mode is brighter, but it is much too garish to provide the image detail and color fidelity that Standard and Pro modes deliver. Also remember that you can select different modes for different inputs.

Now highlight the Color Temp. entry and select Cool, Neutral, or Warm. Cool gives whites a blue tint, and some prefer this setting for video games. Neutral is a more natural-looking setting for most television programs, as it doesn't tint whites. Warm gives whites a slightly reddish tint and is best suited

In the Normal setting, letterbox bars appear on the right and left sides of the screen if the show is meant to fit a squarer TV screen.

for watching movies because many films are shot with this color temperature in mind.

Once you have adjusted tone and color, select Picture and increase the setting to make whites brighter (too much brightness eventually erodes the detail of the picture) or decrease it to make the entire image more dim (which is useful when watching the TV in complete darkness). Then select the Brightness setting to determine the point where grays become black, being careful to not set it too low, which makes all dark colors look black, or too high, which makes pure blacks look gray.

Watch On The Widescreen

This is a widescreen television, meaning it's great for watching DVD movies that are filmed in that format, but compromises must be made when watching

DVDs or television programs designed to fit a narrower, squarer television screen. That's where the Wide Screen Mode settings come into play. Understanding how each setting works will let you find much more enjoyment in watching non-widescreen video. Press the Wide button on the remote control to cycle through these settings.

The default Normal setting provides the best video quality with the least distortion at the expense of leaving black bars on the left and right edges of the screen. These are called letterbox bars. They are simply placeholders for the space the video can't fill in the screen.

The extreme opposite in terms of video quality and distortion is the Full setting, which stretches the video so it fills the entire screen. This makes everything in the video appear much wider and shorter than it is in real life.

The Zoom and Wide Zoom settings are much better options than Full if you want to fill the entire screen with video. Zoom blows up each frame of video, filling the entire screen but cutting off the top and bottom edges of the video. There is no distortion using this method, but you don't get to see everything that was in each original frame. Wide Zoom leaves the center of the video alone and only stretches the sides of the video to fill the screen. This is good for newscasts, where anchors are typically situated in the middle of the screen, but objects on the edges of the screen are greatly distorted.

We recommend learning to live with letterbox bars. You have this great HDTV after all—what better excuse to become a connoisseur? ▣

BY TRACY BAKER

OUT. BROUGHT TO YOU BY T-MOBILE.

Introducing the new HP iPAQ h6315 Pocket PC only from T-Mobile. It's the all-in-one device that lets you go into the office, without going into the office. Get the most *WHENEVER* minutes, unlimited e-mail and unlimited Web browsing, plus Wi-Fi access at thousands of HotSpot locations nationwide. Find out more at www.t-mobile.com/ipaq or call 1-800-TMOBILE.

You really should get out more.
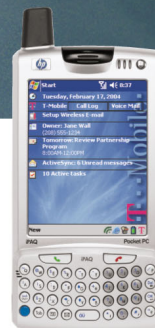
T··Mobile· ®

Get more from life®

Yamaha RX-V1500: how-tos

Yamaha RX-V1500
$849.95
www.yamaha.com

An A/V receiver is an essential part of any home entertainment system. One look at the back of most models can send some of us running back to TV sound and CD shelf systems. It doesn't have to be that way. Yamaha's RX-V1500 offers several tools to make system setup easier. We'll walk you through the basics.

Connect

First, you need to set up speakers. Yamaha's RX-V1500 supports up to 7.1-channel surround sound. That means the receiver creates a separate feed for each of seven speakers (plus a low-frequency subwoofer with its own amplifier). Some digital audio sources, such as DVDs and digital television, come with multichannel soundtracks, and the RX-V1500 can process stereo sources (such as analog television, VHS, video games) internally and split the feed into multiple channels.

In a 7.1-channel surround system, one speaker goes in the center (directly above or below your television). Two go on either side of the display in front. Two more sit beside or slightly behind the listener (standard surround channels), and two sit directly behind the listener (surround back channels). You can forgo any of the speakers you don't want to buy or set up.

Connect each speaker's cable to the corresponding jacks on the RX-V1500's rear panel. Next, connect audio and video components. Yamaha includes a broad range of digital and analog inputs. You shouldn't have any trouble finding the right input options or connection types. For example, plug your DVD's component video and digital optical audio connectors into the RX-V1500's digital DVD inputs and your VCR into the analog VCR inputs. Follow the labels on the back and diagrams in the Owner's Manual to attach each part of your system. Don't forget the jacks on the front panel for portable devices, such as camcorders and video game systems.

Time To Tweak

No matter how good a receiver sounds naturally, it can always benefit from a little tweaking. Traditionally, users have had to guess where to place speakers to get the best sound or pay top dollar for professional installers with expensive equipment to configure a system. Yamaha provides an easy and reliable way to account for environmental settings. The YPAO (Yamaha Professional Room Acoustic Optimizer) tool consists of a special microphone and software inside the receiver. The receiver plays selected tones through the speakers, the microphone captures
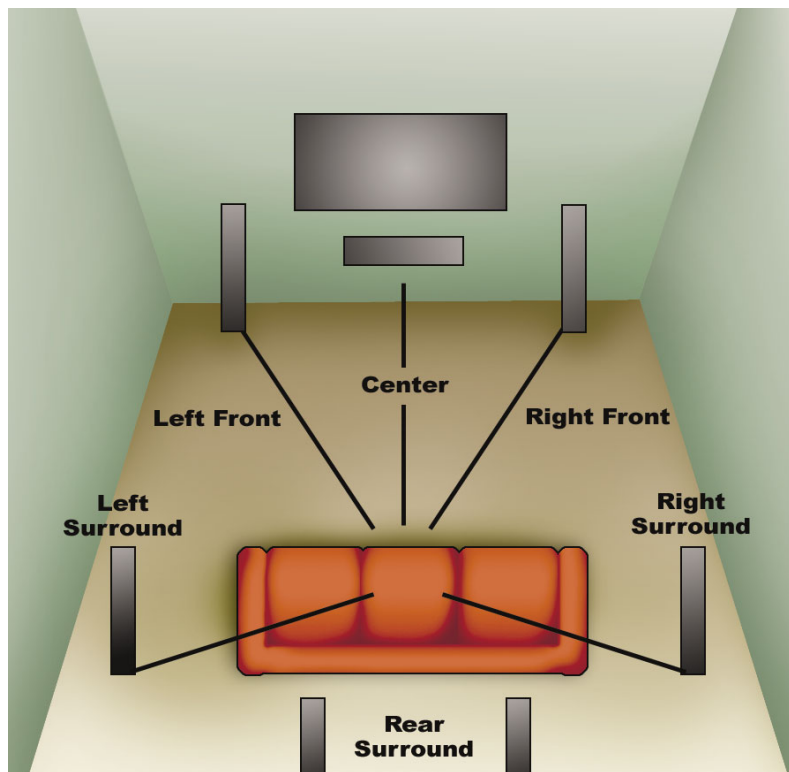
Speaker positioning is crucial to effective surround sound in a home theater.

them in the room, and the receiver adjusts settings based on what it "hears." YPAO checks for correct speaker wiring, placement, and volume level for each channel and adjusts to produce the best sound quality. In our tests, it always made a significant difference.

To set up the tool, connect the included YPAO microphone to the front-panel jack labeled Optimizer Mic. Set the microphone where you'll sit, as close to ear level as possible. Eliminate ambient noise and turn on the receiver. With the remote control, press the Set Menu button. The Manual Setup option lets you adjust all the settings yourself, one by one, but you should start with Auto Setup. Press the Down button to select Auto Setup and press the Right button. Press the Down button to scroll through the various tests until the display shows Start Push >. At that option, press the Right button to begin the testing process,

which should take about five minutes. You'll hear funky sounds from the speakers—some of them loud. The display will show each test's results in turn. After the tests are completed, press the Down button again when the display shows >Set. You'll return to the Auto Setup menu; press the Up button to exit and return to regular operations. Unplug the microphone and store it for future adjustments to the system, speakers, or room environment.

Listen

You'll get the most out of your system, after running the YPAO setup tool, by running your audio and video feeds through the receiver and adjusting the sound options for each input type. The RX-V1500 accepts composite video (single yellow plugs), S-Video (single computer keyboard-style cables), and component video (triple cable) inputs and converts them all to a single

output (whichever you use for video output). Plug all your sources into the back and make just one connection to the television. For audio, connect each component to its jack and use the Input dial to toggle between sources (such as DVD, VCR, and TV). For each source, test the sound field options (Movie, Stereo, Jazz) on the remote control and find the setting that sounds best. As you try each setting, press the Left and Right buttons on the remote to switch between suboptions (Movie: Sci-Fi or Standard: ProLogic II, for example). The RX-V1500 remembers the last setting for each source, so you don't need to change it every time. With a little tweaking, you'll find clear and strong sound for each input. The RX-V1500's high-powered amplifiers help this receiver sound good in any configuration. ⊂⊃

BY GREGORY ANDERSON

tips

A/V Troubleshooting

If you can't clearly hear the dialogue on your DVD while the music booms and the sound effects crash, you probably have a common configuration issue. On the DVD player or in its manual, look for a feature called Dialogue Enhancement or something similar. While watching a DVD, turn the feature on and off to notice the difference. The dialogue enhancer accentuates the frequencies associated with speech, letting the dialogue stand out above the rest of the sound.

3 Stop The Stomping

Neighbors complaining about the drums and bass they hear ripping through the floorboards? If you have surround sound, you can shut off the subwoofer completely (because it's probably causing the problem), or you can turn down the bass by adjusting either the tone controls or the equalizer settings—increasing the lowest equalizer setting while dropping the midrange bass setting closer to zero. If the sound is coming from a TV program or DVD, adjust the audio settings on the TV to use either standard stereo or even monaural sound instead. Or, lift the speakers off the floor and put them on a platform. (Even a shoebox will help.)

5 It's A Clean Machine

Nothing affects electronics quite as harmfully as dirt. Every month or so (at a minimum), unplug the cables and clean them using cleaning solutions available at your electronics store. Make sure they dry completely before plugging them back in. Use a good DVD or CD lens cleaner to clean the dust off the player's lasers. We recommend manually cleaning your VCR's innards (use tips available on numerous Web sites and in electronics stores) or having a professional clean your VCR. VCR head cleaners can be ineffective or can damage your VCR's parts if used incorrectly.

1 The Black Screen Of Death

If your DVD won't play, first try a different disc to determine if the problem is with the disc or the player. If another disc plays, clean the DVD with a soft cloth and try again. If the other disc doesn't play, check that the video cables are plugged firmly into both the player and the TV. If you're running the system through an all-in-one console, make sure you set the console's output and the TV's input to the DVD setting. If all else fails, hook up the DVD player to another TV to see if there's a problem with the connection cables.

2 Discs, Not Frisbees

Like good ol' vinyl albums, CDs get scratched, dirty, and noisy (full of static) if you don't take good care of them. Unlike vinyl, however, you can copy CDs easily without losing sound quality. When you buy a new CD, use a CD copier to make an archival copy for yourself and use that copy in your CD player while you store the original for safekeeping. Even better, use your audio software to rip the CD to your hard drive. Then use those files to make a new copy of the CD if the original gets mangled. You can also transfer these ripped songs to your MP3 player.

BY NEIL RANDALL

To let the music find you… all you need to know is Russound.

Anywhere in your home, indoors or out, there can be music. Or sports. Or news. A Russound multi-room audio system is affordable, easy to use and easy to DO. It's the kind of home improvement that brings you pleasure every day. Just ask your Russound design specialist for a solution that meets your needs and budget. Put Russound in your plans!

System Control Keypad

All you need to operate your multi-room system

• Intuitive operation – just a few buttons and an informative display
• Built-in IR sensor relays commands from wireless remotes
• Programmable labels describe your system in words you know

Multi-Room A/V Controller/Amplifier

All you need to manage and power your multi-room system

• Manages 6 separate audio/video sources
• Delivers sound and video wherever you want it

Music Server

All you need for your digital music collection

• Holds your entire music collection, and archives new CDs as you play them
• Delivers three independent streams of music on demand
• Categorizes music by artist, genre, etc., and even learns your preferences

Dual Tuner

All you need for broadcast music, news, and sports programs

• Contains two AM/FM or XM Satellite Radio tuners
• Delivers two independent streams of music on demand

Loudspeakers

All you need to enjoy the sounds of your multi-room system

• Choice of in-wall, in-ceiling and outdoor models
• Available in many sizes and performance levels
• Flush-mount and paintable – heard, but nearly invisible
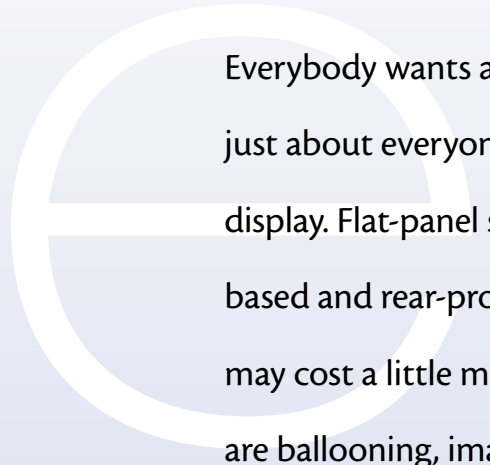
Russound

www.russound.com | tel 800.638.8055 | audio | video | affordable | anywhere

Founded in 1967, Russound is a global leader in A/V solutions that set the standard for performance and ease of use.

Are You Ready For
HDTV?

Everything You Need To Know About Flat-Panel Technology

Everybody wants an HDTV (High-Definition Television), and just about everyone who wants an HDTV wants a flat-panel display. Flat-panel sets are thinner and lighter than their tube-based and rear-projection counterparts, and although they may cost a little more than their bulkier brethren, screen sizes are ballooning, image quality is increasing, and there are flat-panel HDTVs out there to fit every room and budget.

When you say flat-panel (not to be confused with flat-screen), you're talking about LCD (liquid-crystal display) and plasma screens, and they mean big money in the HDTV arena. The CEA (Consumer Electronics Association) claims that the entire DTV (Digital Television) market racked up $10.7 billion in sales in 2004, with 7.3 million total units shipped. LCDs accounted for $2 billion of that figure, and plasma televisions accounted for $3 billion, even though total shipments of both types of sets were only a fraction of the total number of televisions sold. The CEA expects that LCD sales will surpass $3 billion in 2004 and says that the total number of plasma displays shipped will rise from 853,000 units in 2004 to more than 1.4 million units in 2005. If you're considering either type of technology, you'll need to know what benefits they bring to the table.

that have more traditional squared-off aspect ratios (which we'll discuss later). Thinness has nothing to do with it either because there are plenty of HDTVs with the same tube technology older sets use. Plasma, LCD, and other technological buzzwords also don't define an HDTV because there are televisions that use those technologies that are not high-definition.

The main defining point of an HDTV is its resolution. All TVs create images by displaying a grid of colored dots, and the more dots the television shows at once, the higher the resolution. Imagine a piece of graph paper that has a grid containing 640 vertical columns of dots and 480 horizontal lines of dots, for 307,200 dots. That's an SDTV's (Standard Definition TV) resolution, and it doesn't allow for a lot of detail. The problem gets bigger as the screen gets larger; instead of adding more dots of color, the 307,200 existing dots must become larger to fill the expanded screen. The result is a grainy picture with poor detail, diagonal lines that look like steps, and an inability to display smooth curves. For more information on the basics of resolution, see this month's Dejargonator on page 44.

HDTV improves quality by increasing the screen's resolution. The minimum resolution considered high-definition is 1,280 (vertical columns of pixels wide) x 720 (horizontal lines of pixels tall), providing more than three times as many pixels as SDTV. The other HDTV standard is 1,920 x 1,080, providing more than 2 million pixels for images. This increase allows for far more detail and clarity than an SDTV can provide and also lets manufacturers create larger screen sizes without blowing the pixels up so large that they diminish image quality.

LCD and plasma displays are both fixed-pixel technologies, meaning they have a **fixed resolution** (sometimes called **native resolution**). To play video that's not in a television's native resolution, the TV must process the video to fit the screen, so it's

LCD vs. Plasma

LCDs create images using a grid of liquid crystals that twist when electricity is applied so varying amounts of light get through. This light comes from built-in backlights (which can burn out), and because the light must pass through the screen before it's emitted, LCDs are not as bright as competing technologies: especially when you view them from an angle. The backlighting hurts the black level, which determines how black images can be. Also, because each "square" in the picture grid is controlled by a transistor, if a transistor goes out, that portion of the grid sticks, causing the affected dot to display a single color or remain dark. Advances in LCD technology are alleviating these issues, but they still exist.

Plasma TVs get around most of the problems with LCDs by using a grid of self-contained "vials" containing gases such as argon, neon, and xenon. Electrons excite the gases, causing them to create plasma and glow, emitting light.

Because there's no backlighting, you won't see as many problems with black levels as you would with LCDs, but plasma TVs have trouble displaying pure black. You may also notice that overall **contrast** (the difference between pure black and pure white) is enhanced. Plasma TVs have wide viewing angles and produce vivid, accurate color, but they're heavy despite their thinness and the gases trapped within the screen decay over time. Most manufacturers claim plasma screens last for 30,000 hours, as long as the contrast remains at about 50% of its maximum level. Some of the newer plasma sets are advertised as having screens that last for 60,000 hours, which is comparable to the lifespan of CRT (cathode-ray tube) and LCD televisions.

Whether you choose a plasma display or an LCD, one thing is certain: You want a model that supports HDTV.

So what makes an HDTV different from the TV you grew up with? It's not the wider screen, as there are some HDTVs

best to use equipment that matches the set's published specifications.

Several plasma televisions are EDTV (enhanced definition) devices but don't confuse that term with HDTV. EDTVs have the same resolution as SDTVs but support progressive-scan.

Progressive vs. Interlaced

When comparing TVs, you've likely seen specifications, such as 480i, 480p, 720p, and 1080i, used in place of the resolution. The numbers correspond to the horizontal lines of dots SDTVs and HDTVs contain. What about the letters? The "i" stands for "interlaced," and the "p" stands for "progressive-scan."

480i interlaced technology is the oldest and has been in use since the TV was invented. This method separates each frame of video into two fields: One field contains all of the odd-numbered horizontal lines of pixels, and the other contains the even-numbered lines of pixels. The first field displays for 1/60 of a second and the second displays for 1/60 of a second, creating the illusion of 30 solid frames of video every second. Despite the fast switching of the fields, our eyes can see that each frame of video isn't solid, so the picture seems to flicker.

Progressive-scan technology, which is supported by many flat-panel HDTVs, eliminates this problem by recombining the two video fields so that a solid frame of video displays every 1/60 of a second. "Painting" the entire image on the screen at once helps alleviate the strobe-light effect that interlacing introduces and makes for brighter and clearer images because all lines of the video display illuminate at once. Some SDTV sets support 480p, which is a progressive-scan version of 480i, and if you have a DVD player or another device that supports 480p output, you can combine the two devices to achieve far better video quality than is possible with 480i.

Which resolution, 720p or 1080i, is superior depends entirely on the TV and the video equipment you use, so trust your own judgment and not other people's biases when choosing an HDTV.

720p is light-years ahead of 480p in terms of video quality; it displays entire frames of video at once and at much higher resolutions than the 480p standard supports. Most HDTVs support 720p, and some support the other major HDTV standard, 1080i. This is an interlaced format, but because the resolution is so much higher than that of 720p, many users feel the compromises in terms of image brightness and flickering are worth it for the increased detail. Which resolution, 720p or 1080i, is superior depends on the TV and the video equipment you use, so trust your judgment and not other people's biases when choosing an HDTV. Regardless of which format you prefer, both are far superior to 480i and 480p, so you can't make a poor choice.

Understand Aspect Ratios

The measure of a TV's vertical columns of pixels relative to its horizontal lines of pixels is called its **aspect ratio**. It's a term you'll hear a lot when researching HDTVs. Most HDTVs have an aspect ratio of 16:9 (sometimes reduced to 1.78:1), meaning the screen is 16 units wide by nine units high.

Traditional televisions use a 4:3 (1.33:1) aspect ratio, and most television content is broadcast in the 4:3 aspect ratio. Of course, most movies and HDTV programs are shot in widescreen, making them a better fit for a 16:9 screen. This introduces the compromise of **letterboxing**, where black or gray bars display on the television screen in areas where the content doesn't fit. For example, when you're watching a 16:9 widescreen movie on a 4:3 television, the image is scaled down to fit the width of the smaller screen. This leaves empty areas at the top and bottom of the screen that are filled with horizontal letterbox bars. Reversing the problem, when 4:3 content displays on a 16:9 TV, the image fills the screen from top to bottom but not from side to side, so vertical letterbox bars display on either side of the screen.

Manufacturers have developed many methods to make content fill the entire screen regardless of differences in aspect ratios, but all of them involve compromise. For example, stretching video so it fills the screen completely distorts the image, making 16:9 content look too tall when displayed on a 4:3 TV and 4:3 content look too wide when displayed on a 16:9 set. Zooming in so the video fills the entire screen without distortion is another option, but that cuts off portions of the video around the edges of the screen. For the best image quality, learn to live with the letterbox bars.

One thing many people forget when shopping for or setting up an HDTV is that you need special cables to take full advantage of the TV's increased resolution. The composite and S-Video cables commonly used in SDTV sets simply can't handle the amount of data an HDTV signal requires, so you'll need to use component video cables at a minimum to take advantage of progressive-scan and HDTV resolutions.

Component video connections provide excellent image quality, but they are

analog connections, and for the best possible picture quality with a digital television, it is best to use a digital connection. DVI (Digital Video Interface) ports are the most basic, and a few DVD players and high-definition video products support DVI output. HDMI (High Definition Multimedia Interconnect) is a newer digital standard that supports copy-protection and is required for use with some high-definition products that output copy-protected high-definition signals.

Do You Need A Tuner?

Most cable and satellite providers offer HDTV channels to their customers, and all you need to receive them is a special HDTV box from the provider. If you want to receive over-the-air HDTV signals that are broadcast in your area, however, you'll need to spring for an HDTV with an integrated HDTV tuner or buy a separate HDTV tuner. HDTVs without integrated tuners often are advertised as "HD-Ready" or "HD Monitor," but check carefully to see whether the HDTV you're considering comes with its own tuner.

CableCARD compatibility is another concern. Many cable television providers supply customers with CableCARDs that grant access to digital cable programming, and televisions with integrated CableCARD slots can access that content without a separate CableCARD-ready cable box.

Around The Bend

HDTV's future seems pretty certain. Although the 720p and 1080i formats will compete for attention, they may be upstaged by an increasing amount of 1080p equipment that fuses the high resolution of 1080i with the stunning progressive-scan technology of 720p. Two new high-def DVD formats, HD-DVD and Blu-ray Disc, will duke it out in 2005. There's no telling which standard will garner the most support, but we know that HD content will be much easier to access over the next few years. Anything that lets consumers take full advantage of their HDTV sets has to be a good thing.

BY TRACY BAKER

HDTV Demystified

HDTV is an emerging technology, and misconceptions about it confuse buyers. Here are clarifications of common assumptions regarding HDTV:

By default, all HDTVs can handle 720p and 1080i signals. Very few HDTVs display the 1,280 x 720 or 1,980 x 1,024 resolutions that are standard for 720p or 1080i formats, and fewer still can display both resolutions equally well. If your HDTV video hardware can output both signals, test them to see which looks best on your TV. If the HDTV doesn't support one of the settings, the TV won't display an image if you select the unsupported setting (which may make it difficult to switch to the other).

Normal TV looks better on an HDTV. In our experience, analog SDTVs are superior to HDTVs when it comes to watching standard-definition TV. HDTVs have to perform a lot of conversions to get the SD signal to display properly, resizing and rescaling video enough that picture quality almost always suffers. Don't be surprised if your favorite shows don't look as good on your new HDTV and check your listings to see if HDTV versions of those programs are offered in your area.

DVDs will look better on an HDTV. DVDs are encoded with a slightly higher resolution than SDTV signals, and modern DVD players can output a 480p progressive-scan picture, which makes them a good match for HDTVs that support progressive-scan. Remember, though, that today's DVDs are not encoded in high-definition. New HD DVDs will be available by the end of 2005, but there's no telling which of the competing formats will emerge victorious, and playing them will require buying a new high-definition DVD player. Until then, watching DVDs on an HDTV (particularly a widescreen HDTV) provides decent video quality but doesn't begin to take advantage of the capabilities of the HDTV.

Widescreen DVD movies will fill the screen when displayed on a widescreen HDTV. Remember all that talk about aspect ratios earlier? Many movies are shot using a 16:9 (1.78:1) aspect ratio, but that's just one of many widescreen movie formats. If the movie was filmed using a wider aspect ratio, black or gray letterbox bars will appear on the top and bottom of your 16:9 HDTV, but they'll be relatively thin.

I can't play games on my HDTV because images will burn into the screen. Burn-in is a problem with some TVs. It happens when a static image displays on the screen in the same position for too long and burns a light ghost image of itself into the screen. Games tend to use static screen elements to mark health and other statistics, but any static image can burn in, including the station identification "bugs" that appear in the corners of certain channels.

Burn-in is only a concern with plasma displays, CRT (cathode ray tube) sets, and rear-projection TVs that use CRTs. LCD (liquid-crystal display), DLP (Digital Light Processing), and LCoS (Liquid Crystal on Silicon) TVs are not susceptible to this problem.

Sony KLV-32MI: how-tos

Sony KLV-32M1
$2,999.99
www.sonystyle.com

Everyone talks about mammoth LCD and plasma screens. However, most of us are looking for more modest displays and lower price tags. Sony's 32-inch HD-ready LCD model fits that bill nicely. It's small, unassuming, and delivers sharp images.

Places, Everyone

First, pay attention to placement. Many people mistakenly ignore such details. Put the display directly in front of where you'll sit, at about eye level when seated. You'll get the best picture with a head-on view, but the KLV-32M1 has a 170-degree viewing angle, so don't worry about it too much. If you have an entertainment center or shelf in the right place at the right height, use Sony's included stand to set the TV in place. If space is tight, or for eye-catching presentation,

Sony sells a wall-mount bracket (the SU-LW1 for $349.99; www.sonystyle.com) you can install in a couple of hours with common tools.

The KLV-32M1 has nine video input jacks. You probably don't want (or need) all of those cables trailing out the back, especially if you're hanging the TV on the wall. An AV receiver with high-quality video outputs (HDMI or component) and video switching can control multiple video sources with a single connection to the TV. Upconverting receiver models can even take lower-quality video (including VHS and camcorder inputs) and output the material through a single, higher-quality connection.

Find the TV source (cable box, satellite receiver, or over-the-air HD tuner), DVD, and VHS connections. Sony included an HDMI connection for digital sources (HDTV or DVD), a component video input for high-resolution analog

connections (again, including HDTV or DVD), six S-Video and composite video connections for standard-definition video (including DVR feeds, entry-level DVD players, and VCRs), and a regular coaxial connection for analog cable or antenna reception. Use the highest-quality connection available for each device, starting with HDMI through component, S-Video, and composite video. Feeding video through an AV receiver creates fewer connections and makes controlling the system easier.

Connecting audio components to the KLV-32M1 is easier, but you probably won't have to make any audio connections unless you're planning to use the TV's built-in speakers for all of your sound. Connect your DVD player, TV feed, and VCR to a receiver or stereo system. To use the TV for sound, connect each device's audio outputs to the matching inputs on the KLV-21M1 (which includes three sets of red and
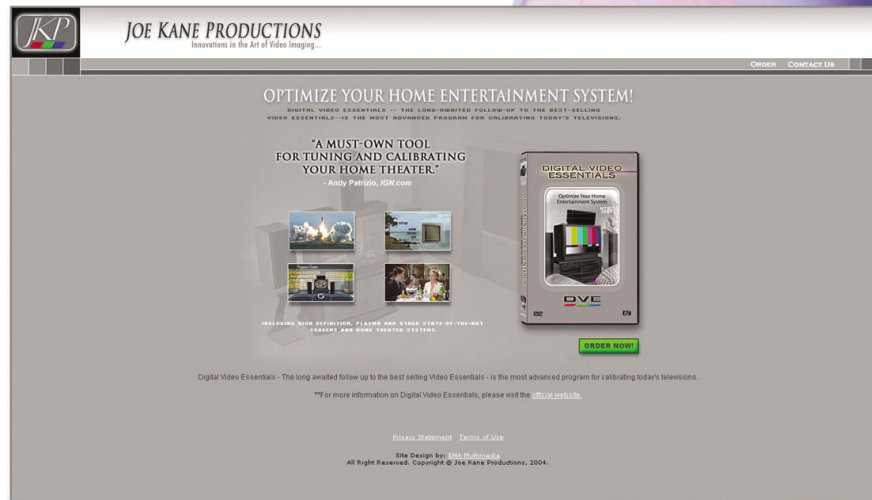
The $25 you spend on Joe Kane's Digital Video Essentials is nothing compared to the price of the TV and is much cheaper than a custom installer.

white audio inputs). You'll only use the unit's audio outputs if you connect a coaxial cable directly from cable or antenna source (without using an HD tuner) and want the sound to run through a receiver. In that case, connect the red and white stereo audio outputs to your audio system's TV inputs.

Get It Right

For your new digital TV to look its best, you need to calibrate it. Start by investing in Joe Kane's Digital Video Essentials calibration DVD ($24.99; www.digitalvideoessentials.com).

After setting up the system, play the Digital Video Essentials disc. Watch the opening sequences and digital video tutorial later but, for now, press the Menu button on your DVD's remote. You can spend hours working through each of the dozens of utilities; we'll walk you through the five main calibration options.

First, press Menu on the KLV-32M1's remote and navigate to Video with the Up and Down arrow buttons. Press the plus sign (+) to select Mode. Press + again and select the Pro picture mode with the Down arrow. Press + again. With the Down arrow, navigate to Sharpness and turn it all the way down with the Left arrow. Press + again. We'll return to this setting later. Use the Up, Down, Left, and Right arrow buttons to access and adjust each of the options described below. Press + to select each setting and to confirm it when you're finished.

From the disc's Program Menu, select Program Guide and choose Video. Select Basic Calibration and jump to Chapter 2 (Title 7) when the Title starts. This adjusts black level, titled Brightness in the TV's menu. Adjust Brightness until the inner black box on the screen disappears. In Chapter 3, adjust the Picture option following the DVD's instructions for judging white levels. Chapter 4 covers

Color; use the included viewing card's blue section to modify the Color settings until dark and light portions of the screen balance in the correct pattern. In Chapter 5, adjust Tint (if possible—the option will be unavailable for component video connections) using the red and green sections to balance the light and dark areas of each screen. Finally, move to Chapter 6 and adjust the Sharpness, bringing it up just below the level where artifacts appear on the screen. You can return to factory settings by pressing the Reset button on the remote control any time. The KLV-32M1 has very accurate color right out of the box, though its black levels leave a bit to be desired. With calibration, though, you can manipulate overzealous factory settings designed to cut through the clutter on showroom floors. You'll get richer colors, a more balanced picture, and happier viewing. ⊂⊇

BY GREGORY ANDERSON

LG DU-42PY10 42-inch Plasma TV: how-tos

LG DU-42PY10 42-inch Plasma TV
$5,499.95
www.lgusa.com

The LG DU-42PY10 42-inch Plasma TV gives you a bright screen with excellent contrast and a 16:9 widescreen aspect ratio. To get the sharpest detail and clearest picture, use component video cable for your DVD player; the TV will work with composite or S-Video connections.

Unpacking the television is easier than it looks, but you'll need two people. The TV and packaging weigh 101 pounds; the TV is surprisingly heavy considering its thin size. Lift the box cover straight up. There are handholds on the back of the TV toward the top, but we lifted by the base instead. With one person at each end, grab the base of the television, lift it straight-up out of the box, and place it on your TV stand.

LG doesn't include audio/video cables, so you'll need to buy a set before hooking up the DU-42PY10. If you're using composite or S-Video, hookup is fairly simple. Connect one end of the audio/video cables to your DVD player and connect the other end to the back of the television in the specially marked inputs.

For component video, connect the red cable to your DVD player's output marked "Pr" and plug the other end into the rearmost input marked "Pr" on the back of the TV. Connect the green cable to the DVD player's "Y" port and the other end to the TV's matching input. Finally, connect the blue cable to the DVD player's "Pb" output and plug the other end into the TV's corresponding input.

With component video inputs, use the audio inputs to the left of the component video inputs on the television. The audio ports to the right, normally used for composite or S-Video hookups, won't function with component video inputs

(they work only with the composite and S-Video inputs). Plug one end of your stereo audio cables into the TV's audio inputs immediately to the left of the component video inputs you used, and plug the other end of the audio cables into your DVD player's outputs.

Press the Power button to turn on the television. After booting up, the TV displays its scheduler. The remote has six modes, indicated by the LCD at the top of the remote control. Press the Mode button until the TV indicator lights up; use this mode to control the television. Press Exit on the remote to close the scheduler and watch TV. Press Light to light the keys on the remote so you can see them in a dark room.

Optimize The Display

Most TVs have myriad basic display adjustments, such as contrast, brightness, and sharpness. The LG DU-42PY10 is no

exception, but it includes a few more-sophisticated controls, such as color temperature and a series of display presets optimized for content (Daylight, Normal, Night Time, Movie, Video Game, and Sports).

To select a video preset, press Menu on the remote while a TV program or DVD is playing. Press Down on the control pad to highlight Video and press Right to open the submenu. Press Right again to move the cursor to the top of the EZ Picture menu. Press Up and Down on the control pad to select a preset. You'll see the DVD or TV program's picture settings change with each preset, giving you a preview of the display preset. Press Exit to finish making your selection.

You can also customize the sound with several audio presets. To choose one, press Menu on the control pad and press Down twice to highlight Audio. Press Right and then Down to highlight

EZ Sound. Press Right again and choose the preset from the list (Off, Normal, Stadium, Theater, or Music) by pressing Up and Down on the control pad. To make your selection, press Exit.

If the LG DU-42PY10 is your first wide-screen television, adjusting the **aspect ratio** (the measure of a television screen's width to its height) for the maximum picture size takes practice. Here's how it works: For regular TV content, set a 4:3 aspect ratio. This creates gray bars on the left and right of the screen, but the picture has the correct proportions. You can stretch the picture to fill the screen if you'd like, but the image will appear unnaturally squashed.

For watching widescreen DVDs, set the TV's aspect ratio to 16:9. This gives you the widest picture without stretching the image. Compared to a regular TV, the black bars that you normally see on the top and bottom of the DVD's image are

smaller. This is the bonus you get for buying a widescreen display. Don't forget to check your DVD player's manual; you might have to set the DVD player to default to 16:9, as well, as we did on our Samsung test model. Otherwise the DVD player will output 4:3, and then none of the included aspect ratios in the LG DU-42PY10 will look correct.

If your DVD player supports it, set the DVD player to **progressive scan** (525p; all 525 lines of the image are redrawn simultaneously, reducing the flicker associated with interlaced scans that redraw one-half of an image at a time) mode. This mode is available via the component outputs only. With component outputs, you'll see a higher-resolution, more stable picture. Progressive Scan works only with HDTVs. Make this adjustment now, unless you owned an HDTV before the LG DU-42PY10. ⓒⓔ

BY JAMIE LENDINO

Samsung LT-P326W TFT/LCD: how-tos

Samsung LT-P326W TFT/LCD
$3,299.99
www.samsung.com

The Samsung LT-P326W TFT/LCD (Flat Screen) TV is a feature-rich, high-quality set; its sleek, brushed-chrome-and-black exterior will complement any décor. We found the features impressive, but overwhelming at first, but with a little practice, we were on our way.

The LT-P326W is light (around 50 pounds), but its width makes setup a two-person job. Samsung provides a chrome-colored, plastic stand and a wall-mount bracket. The bracket is for concrete walls only; contact the nearest Samsung dealer before you mount it to another surface. If you opt for the stand, lay the TV on its side to attach it (use the four screws Samsung provides).

The LT-P326W supports an array of connections. In addition to AV (VCR) and DVI-D (DVD or set-top box), you'll find S-Video (camcorder or VCR input), HDMI (a common set-top connector), PC video and audio, subwoofer, and other jacks on the back of the unit. Each input is clearly labeled.

We connected a standard coaxial cable input. The LT-P326W is cable ready, so if your cable or satellite connection doesn't require a box, insert the coaxial input into the Ant In jack. If you use a cable box that unscrambles channels, follow the special setup detailed on page 10 of the OIM (Owner's Instructions Manual).

No matter what setup you choose, you'll need your cable remote to access guides and other features of the cable box.

After you connect the cable (and the power cord), press the power button on the right side of the LT-P326W. (All main buttons—channel, volume, etc.—are located here.) The screen should display the message Plug And Play. If instead you see No Signal, press the Source button on the side of the unit.

The LT-P326W will prompt you to select basic settings, perform an antenna check, and ask for the cable source. STD (Standard) works for many systems; if it does not work for you, check with your cable provider.

If your setup involves a cable box, set up the unit's remote control to run the box. On the LT-P326W remote, press the Mode button until it displays CATV and slide open the bottom control panel. Use a Phillips head screwdriver or another small, blunt object to depress the Set button. Enter the appropriate code. Press the Power button to turn on the cable box.

If you use a direct cable connection (no cable box) the LT-P326W must determine what channels are available. On the LT-P326W remote, press the Mode
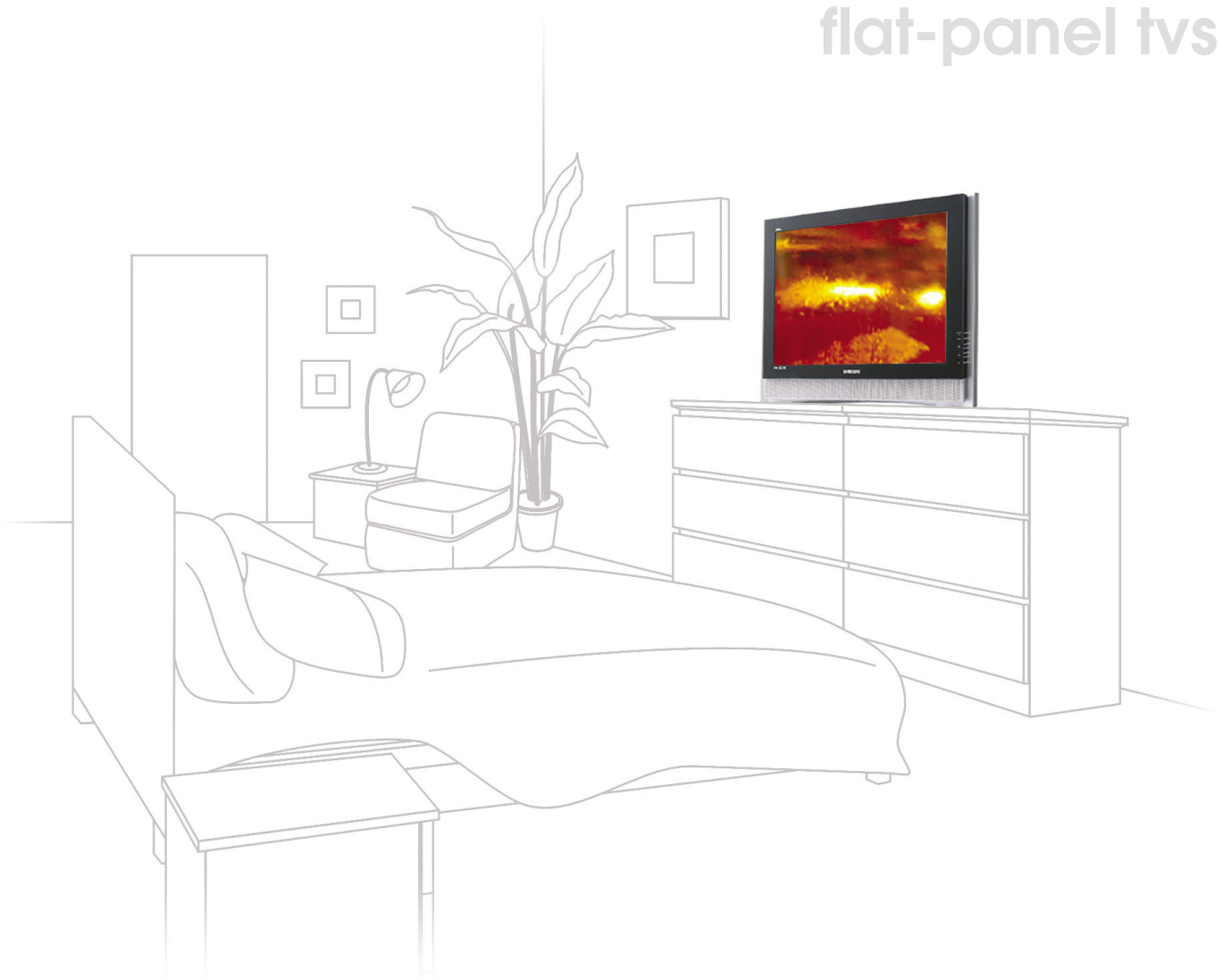
button, select TV, and press the Menu button. Use the Menu to edit settings, change input sources, adjust picture quality, and perform other operations on your LT-P326W.

Press the Down arrow to select Channel and press Enter. Press the Right arrow to select your cable setting. Scroll to Auto Program, press Enter, and then press Start. When complete, exit the Menu.

Special Features

The LT-P326W has many great features; our favorite is the ability to connect a PC and run it, if you wish, in PIP (Picture In Picture) mode. This lets you surf the Internet, retrieve email, or perform other PC functions on your television. Using PIP, you can view the PC display in a small window at the bottom of your screen as you watch television on the main display (or vice versa). Setup is easiest with Windows XP as described here.

A notebook PC works nicely, as it usually has an external monitor output, and you can position it in your lap. You'll need access to the PC to input text, use the mouse, etc.

To set up your PC link, use your monitor cable (if you're using a notebook, you may need to buy one) and the audio cord Samsung provides to connect the video and audio (speaker or headphone) output jacks on your PC with the matching jacks (marked PC IN) on the back of the LT-P326W. On your PC, right-click the Desktop and select Properties. Click the Settings tab and click the Advanced button. Select a tab entitled Display (or similar). Enable second monitor; on our test unit, it was a checkbox called CRT. Click Apply. Look for the Monitor tab (or similar). Set the monitor resolution to 1,280 x 768 or 1,024 x 768 and the Refresh Rate to 60Hz. Click OK several times to exit Display Properties.

With the LT-P326W remote's Mode set to TV, open the bottom panel and press the PC button. If the PC display doesn't appear (this is rare), your video card may have a nonstandard display mode or may not support external monitors. Refer to the video card manual for assistance.

To enable PIP, press PIP on the TV's remote. The PC displays in the main screen, with the TV displays in the small inset picture. To swap the two, press the Menu button, select Picture, and press Enter. Scroll to PIP and press Enter. Scroll to Source and press Enter. Scroll to Swap, press Enter, and then press Exit.

It takes time to master the LT-P326W, especially if you connect multiple external devices. Many setup steps for other devices mimic those described here, so with a little effort you'll soon be enjoying your new television. ⊂Ε
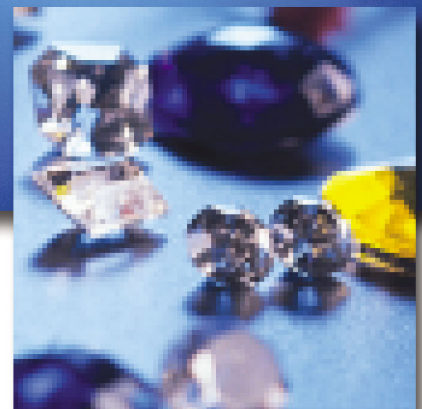
BY JENNIFER FARWELL

CE Dejargonator:
Resolution

High-resolution images hold up well under magnification,
but low-resolution versions become unusable when enlarged.

Resolution, simply put, measures image detail. The higher the resolution, the higher the detail. The more detail, the sharper and crisper the picture. Resolution may refer to the detail in the video signal itself, whether it comes from cable, DVD, VHS videotape, or any other video source, and it may also describe the amount of detail a television is capable of displaying. You've likely seen the latter expressed as "lines of resolution."

The lines-of-resolution measurement is frequently misunderstood, but it's really quite simple. An analog video picture is painted onto the screen as 480 horizontal lines, tightly stacked top to bottom. Each of these horizontal lines is itself made up of hundreds of separate elements called pixels, tightly packed left to right. Thus, a TV image is actually a series of vertical columns of pixels, tightly packed left to right. These vertical columns are lines of resolution. The more columns you have, the more detail.

A VHS image consists of just 240 to 260 lines of resolution, which is why it's not as crisp as a 440-line broadcast image. And it's why a broadcast image isn't as sharp as DVD, which uses up to 720 lines. Also remember that the TV may limit how many lines display. If the TV displays only 500 lines of resolution, it won't matter that the DVD supplies 220 more lines; you'll only see 500 lines of resolution.

With the arrival of digital TV signals, resolutions are on the rise. In fact, in 2006, all U.S. TV stations will be required to broadcast digitally. The most basic digital broadcast (DTV, which stands for Digital TV) will approach DVD quality. Even better, more and more networks and stations are offering not only DTV broadcasts, but also HDTV (High Definition TV). HDTV's resolution is significantly higher than DTV.

In digital signals and TV sets, resolution is expressed a bit differently, but we can break them down into two main types of HDTV signals: 720p and 1080i. The "p" in 720p indicates that the image is progressive-scan, while the "i" in 1080i stands for interlaced. These terms refer to the way in which each frame of a video signal is drawn onto the screen. (We'll have a more thorough explanation of progressive-scan in the Dejargonator column in the May 2005 issue.) The increase in detail and overall picture quality is dramatic, the kind of difference you'll notice at first glance. If we use the old "lines of resolution" term and compare current analog standards to HDTV images, the difference is obvious: An existing analog broadcast is made up of 440 lines of resolution, or vertical columns, whereas HDTV images are either 1280 lines, or 1920. It's a whole new world. ce

BY JERRY HATCHETT

Looks Really Are Everything

The Future Of Video Takes Us Way Beyond HDTV

TV display technology stagnated for so many years—decades, in fact—that, until very recently, most of us hadn't associated it with change at all. Then again, until recently, many of us worked solely with heavy, tube-based computer monitors that use the same CRT (cathode-ray tube) technology as standard TVs, so there's little wonder things have progressed slowly. But in the past several months, HDTV (High-Definition Television) has moved further into the mainstream than ever, and other technologies, such as LCD (liquid-crystal display) and plasma televisions in particular, have caused videophiles to salivate at an unprecedented rate.

So where to next if you're looking for the best possible displays? Let's take a look, starting from where we are right now in early- to mid-2005.

The Uncertain Present

Buying a TV today is confusing. Yes, you can still get TVs with picture tubes (CRTs), and you can get them fairly cheap, but the stores clearly want you to pay attention to the various display technologies compatible with HDTV and capable of showing the full range of video in today's high-resolution DVD movies. The low end of these products was once the high end: the good old rear-projection displays. The price of rear-projection TVs has plummeted as new technologies have come to the fore, to the degree that a 50-inch model is less expensive, in many cases, than a 36-inch tube TV was only a couple years ago. Better still, most projection TVs today display HDTV's two main broadcast formats, 720p and 1080i, at pixel counts approaching or exceeding 1 million. One million pixels is another basic hallmark of HDTV, so you know you're in good hands here.

But three other main display types crowd the stores these days: plasma, LCD, and DLP (Digital Light Processing). Plasma displays use fluorescent-light technology to form images, essentially three tiny colored fluorescent lights per pixel, and fluorescent lights contain plasma gas (hence the name).

The great thing about these displays isn't just the incredible picture quality, it's the fact that the displays are thin and light. LCD TVs, by contrast, work with the same technology that powers the monitor on your notebook PC: liquid crystals. LCD TVs come in small, notebook-sized screens, as well as rear-projection versions that you'll find as large as 72 inches. The third of today's major TV technologies, DLP, works in conjunction with rear-projection displays to produce a sharper, clearer image, using a system of thousands of mirrors and a color wheel to produce the images.

As you probably expect, each of these technologies has its distinct advantages, so it's anything but easy to choose among them. To get an idea of which TV you find most appealing, go to an electronics store and watch all of the televisions for as long as you need. Good stores will not only let you do so but encourage and help you.

Into The Next Few Years

Watching TVs and DVDs is a very popular activity. Manufacturers would be daft not to keep coming up with new products to make us change the way we watch. The market is clearly there, as the rise of rear-projection TVs proved a couple years ago, and as plasma, LCD, and DLP versions are proving once again. Here are a few of the video technologies you can expect to see in the next three to four years, with all of them starting at very high prices but then falling as the next batch of technologies comes along.

LCoS (Liquid Crystal on Silicon). LCoS technology is related to LCD technology; both use liquid crystal. LCoS structures are sealed on a silicon chip, with the technology used to control them embedded in the silicon itself. The tiny, tiny size of these chips lets LCoS technology display millions of pixels per square inch, far beyond today's TVs. The silicon chips are engineered to work more efficiently with light reflections than LCD manages to do, the result being a substantially brighter image. The resolution of this technology is superb, as well. Don't look for LCoS sets in your store any time soon, however; chip giant Intel is no longer supporting the technology, and few other companies are focused on it.

UHDV (Ultra High Definition Video). Just when you thought you had a handle on the benefits of HDTV, Japanese technologists are working on a much, much more capable successor known as UHDV. So far, this technology promises resolutions at least 16 times greater than today's HDTV sets, with much higher resolutions possible. In fact, according to the researchers, there's no reason UHDV couldn't reach 32 million pixels, as compared to HDTV's maximum of 2 million. Furthermore, UHDV will broadcast at 60fps (frames per second), double today's 30fps rate. The result will be a picture so packed and so rapidly produced that the human eye will be unable to discern its workings the way it can with today's technologies (we see flicker, pixilation, color rainbows, etc.). The goal of UHDV is as close to full illusory immersion as possible: In other words, the pictures will look impressively (and possibly disarmingly) realistic.

In an interesting additional touch, UHDV promises 22 channels of sound, including 10 speakers at ear level and nine at various other heights. We're a long way from "I Love Lucy" in mono and with bad reception. The point of all of this, as already suggested, is the concept of immersiveness. The more real the illusion seems, the thinking goes, the more you will feel you're actually there, actually being part of it, actually being involved. Given the importance of special effects in movies, it's hard to argue with this. But the UHDV project raises the important question: Do you need that much realism? People have long become immersed in books, plays, music, and even poorly filmed movies. It wasn't the technology that immersed them, it was the art itself. But hey, if UHDV looks and sounds incredibly good on your way to such immersion, it's fine by us.

3D screen technology. One of the truly amazing things about television is that, unlike the world around us, it provides only two dimensions. There's no depth to a TV image, other than the depth our minds give it in order to let them satisfy us. Well, all of that's changing, although not necessarily very quickly with TV itself. Instead, numerous companies have begun to produce 3D displays and monitors with compatibility for games and applications, in order to provide a visual environment that makes you think you're seeing things in three dimensions.

We're a long way from
"I Love Lucy" in mono
and with bad reception.

So are you about to walk out onto your very own holodeck any time soon, interacting with people and objects as if they were really there? Not likely. But by using variations on a technology called autostereoscopic 3D imaging, these displays can produce an illusion of depth without forcing you to wear those clunky (but really neat) stereo glasses you could once put on in movie theaters to watch such classics as "Creature from the Black Lagoon." You're probably already familiar with stereoscopic images, in the form of colored dots or lines, that produce 3D after images when you stare at them. Autostereoscopic images work on the fly and produce a much more realistic effect. Some 3D technology (such as LightSpace Technologies' DepthCube and Deep Video Imaging's ActualDepth) makes use of layered LCD panels to produce similar effects, while still others (Actuality Systems' Perspecta Spatial 3D System), use a rotating screen of 2D images that fool the eye into fusing them into a nonmoving 3D image; functioning so successfully that you can even walk around the display and still see its full three-dimensionality. HoloVizio's Holografika, by comparison, is a 3D display that allows multiple viewers to see the same 3D view simultaneously.

Just think of how much more enjoyable "Fear Factor" will be when you can see all the gruesomeness in full-3D glory. Makes you hope this stuff comes soon, doesn't it?

LED backlit LCDs. Seeing red? Actually, you're not. At least, not a particularly good red. One of the issues holding back full acceptance of LCDs is the power needed to provide the backlighting. Without good backlighting, you don't get the full brightness of colors, and LCDs have trouble providing that. LED (light-emitting diode) technology provides a light source that promises to show us the full brightness of colors across the entire spectrum, instead of the 60% to 70% we get with

> Just think of how much more enjoyable "Fear Factor" will be when you can see all the gruesomeness in full-3D glory.

today's LCDs. This full range of colors is known in the television industry as the NTSC color space, the standard used for color reproduction in the United States. The LED technology company Lumileds claims its Luxeon backlit TVs achieve 100% of the NTSC color space, with resulting colors that change the TV viewing experience.

When will we see LED Backlit LCDs? Soon, according to Sony and NEC-Mitsubishi. Sony has incorporated its LED backlighting technology, dubbed Trilumonics (try rolling that one off your tongue), into its high-end 40- and 46-inch Qualia sets, with several models in the better-known Wega line soon to see the addition, as well. NEC-Mitsubishi is also set to introduce LED backlit sets, all using the Luxeon technology. You'll pay heavily, but hey, red is red.

Interactive TV. The concept of interactive television has been with us, in essence, ever since we've had more than one channel. Yes, it was interactive back then to get up and turn the TV dial, just as it's interactive today to press the channel menu button, find what you want to watch, and tell your TV to show that station. But the interactive TV concept is far more than this. It's about watching your favorite shows and, when you see something you'd like more information about, pressing a button to show that information on your TV screen. More cynically, it's about seeing your favorite TV star wearing a particularly fetching sweater or hat and pressing a button that lets you buy that sweater or hat right then and there. Interactive TV gives you a return path to the broadcaster; it sends you a program, and you send it information. The information might simply be that you wanted to pause a show at a certain time, or that you wanted to learn more about a particular actor or location, but it's information nevertheless.

So will interactive TV ever get here in a significant and useful way? Yes, it will. But it fundamentally changes the relationship between viewers and their television sets, and that's certainly something to be aware of. Whenever you provide feedback, you also provide information about yourself, and you open yourself up to programs, ads, and other marketing items tailored precisely to what you've shown you like. Although this might be convenient and even sometimes astonishingly cool, it can also be abused. We don't want spyware on our computers; do we want the equivalent from our TVs?

A Feature Feast

Get ready in late 2005 and 2006 for a blitz of interactive TV features from your cable or satellite company. Broadcasters are really anxious for this technology to work. ▣

BY NEIL RANDALL

How easy should recording a DVD be?

THIS EASY.

The HUMAX DVD Recorder with TiVo® service.

The HUMAX DVD Recorder makes it easy to control television and create DVDs. That's because the same great TiVo® service that lets you find and store your favorite programs, guides you through the process of burning a DVD. And don't worry about shelf space. This little box takes the place of three components. It's an 80-hour TiVo Series2™ DVR, an advanced DVD player, and an easy-to-use DVD Recorder. So search for shows and save them on the hard drive or burn them right to a DVD. With the HUMAX DVD Recorder, your shows can go wherever you go, easy.

Contact HUMAX at 866·486·2987 or www.humaxusa.com

TiVo

BEST BUY — Now, that's a great idea!

circuit CITY

amazon.com

good guys

J&R MUSIC WORLD COMPUTER WORLD 800-221-8180

ELECTRONICS eXpo — it's all about entertainment.

HUMAX
EASY DIGITAL™

Memory Cards & Digital Cameras

Choose & Manage Digital Film

f you've been shopping for a digital camera recently, you've probably noticed that the number of memory cards (often referred to as "digital film") used to store pictures has exploded. Consumers have to sort through at least a dozen formats of itty-bitty cards, many of which look almost alike and are incredibly small relative to other digicam accessories. As the market has become more competitive, engineers have jockeyed to produce cards that hold more pictures at a lower cost. Because different cameras take different-sized shots, it's difficult to say exactly how many will fit on a piece of digital film. We'll try to make some sense of all the options and show you how to use the card you select to make sure your digital photography remains quick and convenient.

Most memory cards for digital cameras use roughly the same technology, called flash memory, to store your pictures. Instead of writing strings of digital ones

This 8-in-1 ImageMate USB 2.0 High Speed card reader from SanDisk will accept CF I and II, Memory Stick, Memory Stick PRO, SD, MMC, xD, and Smart Media cards.

and zeroes onto a rotating magnetic platter, as a hard drive does, or onto an optical disc (DVD or CD), flash memory stores your data on small computer chips. This is a great system because it doesn't require any moving parts. This means that the cards are durable (most are tested to withstand falls of up to 10 feet), fast, and small—perfect for storing your digital pictures.

Although most formats use nearly the same technology, they do differ in shape, cost, speed, storage capacity, and other bonus features. Here's a quick run down of the most common formats.

CompactFlash

CF (CompactFlash) cards are, along with SD (Secure Digital), among the most common used in digital cameras today, and probably the cheapest too: A 512MB card currently costs about $70. There are actually two types of CF cards, predictably named Type I and Type II. Both are matchbook-sized, but Type II cards are a bit thicker than Type I. Any device that accepts Type II cards will accept the smaller Type I, but not the other way around.

Both kinds of cards may have Write-Acceleration microprocessors embedded in them to speed up data transfer. However, you need a high-end camera to take advantage of this feature, and even then, most average photographers won't notice the differ-

MicroDrives In Compact Flash

One fine-print detail: Some CF (CompactFlash) Type II cards actually use MicroDrive technology, essentially embedding a tiny hard drive in the card. Micro-Drive cards are typically much cheaper for sizes 2GB and larger than their CF counterparts and work in all Type II CF slots. Furthermore, engineers claim that they're faster and more shock resistant than comparable flash memory. However, common sense suggests that a tiny machine with dozens of moving parts will be more prone to failure than a single memory chip. If you're shopping around for a CF card, make sure you know what you're getting.

How Many Pictures?

This chart shows how many pictures you can expect to store on different memory cards, using average compression settings that won't noticeably reduce the quality of your pictures. Remember, you can always store more low quality pictures in the cameras if you desire. Your actual capacity may vary depending on your camera, its settings, and the photos you take.

Camera Resolution (in Megapixels)	Card Capacity (number of pictures stored on a card of given capacity)						
	32MB	64MB	128MB	256MB	512MB	1GB	2GB
2MP	36	74	148	296	592	1,184	2,368
3MP	26	54	109	219	438	876	1,752
4MP	16	33	67	134	269	538	1077
5MP	12	25	50	100	201	403	807
6MP	10	21	42	84	168	336	673

ence. Type I cards run up to 8GB, and although sizes that large are uncommon, the smaller 4GB Type I and II cards are widely available.

Secure Digital & MultiMediaCard

SD cards are a special type of MMC (MultiMediaCard) and, along with CF cards, are among the most common and economical cards used in today's cameras. A 512MB SD card costs about $80. SD and MMC cards are identical-looking, postage-stamp-sized chips, and although you can use MMC cards in SD slots, you can't use the newer SD cards in MMC slots. Still, SD cards are much more popular because they're faster, can use digital copyright protection, and have write-protect switches. If you've taken a set of photos and don't want to accidentally erase them, just flip the card's switch, and you can't delete them until you flip it back. Like CF cards, high-capacity SD cards are available. Currently the largest model is 2GB, but manufacturers claim that storage will

miniSD cards, such as these from SanDisk, can be used in a full-sized SD slot with an adapter.

continue to climb, reaching 16GB on a card by 2008.

xD Picture Cards

xD Picture Cards (Extreme Digital Picture Cards) were introduced by Olympus and Fuji in 2002 as an alternative to SD and are still used principally in cameras that these two companies manufacture. Consequently, they are a bit pricier than their CF and SD peers; a 512MB xD card costs about $90. Furthermore, xD cards aren't available in the mammoth sizes that CF and SD cards are. Although higher-capacity

cards are in the works, currently the largest available is 512MB.

xD cards are very small, about the size and shape of half of a postage stamp. In fact, xD cards are so small, that we wonder if they're too tiny; all but those with the most delicate and dexterous of fingers will probably fumble a bit fitting them into a camera, and if you're prone to losing things, they're the same size as all the other items we find in dark corners of cluttered purses and under couch cushions. However, one great feature that their Lilliputian

Compare Formats

Compare some popular digicam memory formats at a glance.

Format	Largest Size	Cost for 512MB / 2GB	Special Features
CF (CompactFlash) Type I	8GB	$70/$180	Also work in Type II slots
CF Type II	8GB	$70/$180	Larger than Type I
CF Type II MicroDrive	10GB	NA/$120	Uses small hard drive $120 for 2GB
SD (Secure Digital)	2GB	$80/$180	Write-protect switch
xD (Extreme Digital)	512MB	$90/NA	Very small
SmartMedia	128MB	NA/NA	Being phased out
Memory Stick	128MB	NA/NA	Also available in smaller Duo size
Memory Stick PRO	4GB	$120/$260	Also available in smaller Duo size

size allows is that they fit well into adapter cards. For example, if you already own a CompactFlash camera and card reader, but find an Olympus camera that uses xD cards that you can't live without, you can buy an adapter to use your new xD card in your old CF camera and card reader. Of course, you can't mix and match the other way around; trying to put a CF card in the much smaller xD slot would be like trying to put a loaf of bread in your toaster.

SmartMedia

SmartMedia cards are still hanging around stores, but manufacturers are phasing them out in favor of other formats. These cards, about one-third the size of a credit card, look a bit like SD cards but only hold 128MB. If you still have a SmartMedia card camera, it might be time to upgrade soon. In the

SanDisk's PC card adapter lets laptop users download shots from their cards on the go.

meantime, you can still buy a 128MB card for about $35.

Memory Stick

Sony developed Memory Stick media to simplify memory requirements for its products, but the company released so many updates and versions that many forms of Memory Stick add to the confusion, rather than clear it up. The two main types are the original Memory Sticks, which hold 128MB, and the next-generation Memory Stick PRO, which holds 4GB. If you're taking high-resolution pictures with a new digital camera, you probably want the extra size and speed that PRO allows.

You'll find two sizes in each type: regular and Duo. Regular memory sticks are about the size of a stick of chewing gum, and Duo-sized sticks are about one-third as big. This means that there are four kinds: Memory Stick, Memory Stick Duo, Memory Stick PRO, and Memory Stick PRO Duo. Of course, Sony sells an adapter so you can use Duo-sized cards in regular-sized slots.

The biggest drawback of the format is that Sony's proprietary media is a bit pricy: The 512MB Memory Stick PRO costs about $120, which is $50 more than a similarly sized CF card. Still, Sony's products have impressive high-speed data transfer rates and digital copyright protection. If you fall in love with a Sony camera, they also may be your only choice.

If you take a lot of pictures, you may get tired of linking your camera to your computer every time you want to download your photos. We'd recommend a digital card reader. These devices usually attach to your computer with a USB, USB 2.0 High-Speed, or FireWire cable and often transfer data

Mini-Formats

Flash memory cards are pretty small, but manufacturers have started creating even tinier cards for use in ultra-small digital cameras and other devices such as PDAs and cell phones. The formats are usually based on their larger cousins—miniSD is related to SD (Secure Digital) and RS-MMC (reduced-sized MultiMediaCard) is related to the full-sized MMC. The future is likely to bring even tinier cards, so when you're shopping, don't accidentally get the micro version unless you're sure your device can use it.

Fuji's xD card is truly tiny.

much faster than your camera can. After you've installed the card reader's driver software, insert your memory card into the reader. Your card will appear as a hard drive on your computer, and you can copy your files without worrying about negotiating the tangle of wires to plug into your camera every time. Of course, you'll need to find a card reader that supports the kind of memory cards you use. You'll find card readers are available as 8-in-1 (or more) devices that support all the major formats and some of the obscure ones too. For example, SanDisk's 8-in-1 ImageMate USB 2.0 High Speed card reader ($29.99; www.sandisk.com) will accept CF I and II, Memory Stick,

Memory Stick PRO, SD, MMC, xD, and SmartMedia cards.

Alternatively, if you're a laptop user and don't want to lug around yet another USB peripheral to get your photos on your computer, a few manufacturers make PCMCIA (Personal Computer Memory Card International Association) adapters. These fit into your laptop's PC card slot and provide a socket for your digital camera's memory card. These work basically the same as their USB cousins but save you the hassle of carrying another device in your briefcase.

If you really want to take digital photos but don't want to use a computer to store, manage, and view them, a few devices may be useful. For instance, a digital photo viewer lets you bypass your computer completely by reading your memory cards and displaying your pictures directly on a TV. These devices are available as set-top boxes that are designed to stay next to your DVD player or as portable devices.

Heavy-duty travelers might prefer the portable models, which often feature built-in screens. These devices let you look at your pictures on the go without the weight and bother of carrying a computer around. At about the size of a portable CD player, they have another benefit: Because most of them include hard drives, they provide a place to store your pictures. A 20GB hard drive will let you unload your 256MB flash card 80 times. Delkin's eFilm PicturePAD ($399.99; www.delkin.com) and Epson's P-2000 ($499.99; www.epson.com) both contain 40GB drives. They aren't cheap, but if you travel extensively and take lots of pictures, it's probably the most convenient way to keep track of them.

Likewise, printer manufacturers have wised-up to the computerless trend. Most photo-capable printers now let you insert your flash memory card directly into the printer to get paper pictures without using a computer. Of course, be sure your printer can use your camera's cards.

Although the number of different digicam memory card formats out there is confusing, the many options create benefits that a universal format couldn't. Competition has made memory cheaper than ever before, and the diversity of formats reflect and serve the diversity of customers' needs. Digital

Delkin's eFilm PicturePAD will read CompactFlash cards and store up to 60GB of photos on its hard drive. You can view them on the built-in LCD screen or plug the device into your television for a slideshow. Later, you can transfer the photos to your computer via a USB cable.

cameras aren't all the same, and neither are photographers: Why should memory cards be? Don't expect digicam makers to agree on a universal format anytime soon. Look for the format you like most and let the chips, and cards, fall where they may.

BY JOSEPH S. BELL

Deal Breaker?

You've combed through descriptions of dozens of digital cameras looking for the exact model that meets your requirements for resolution, zoom, size, brand, and price. Finally, you've found one with the perfect balance of features, except for one nagging detail: It uses a different memory card format than you had wanted. Maybe you had always imagined your dream camera would use CF cards, but this one accepts only SD. Does this matter enough to rule out an otherwise perfect camera? Or is this new detail about your camera-to-be just a personality quirk that you'll learn to love?

Although there are differences among the formats, unless you have extremely demanding storage requirements, you probably won't notice the difference. CF cards are available with greater storage capacities and, along with SD cards, tend to be a bit cheaper than their counterparts of other formats. However, the price differences among formats for average-capacity cards (around 512MB) are usually less than $20, except for Memory Sticks which can be as much as $50 more. The only time memory card format becomes important is when you already have other devices that use cards in a particular format. In that case, it might be worthwhile to give some thought to sticking to one kind of card. Even then, you might be able to find an adapter that lets you share cards among devices. Remember, a better memory card won't take better pictures—the camera is what's important.

Indulge yourself.

You deserve the visual experience that's the professionals' choice. And now you can get this grand view for under a grand. ViewSonic's luxurious 20" VP201b has ultra-high 1600x1200 resolution not even found on smaller LCDs. So indulge yourself in the screen with sharper text and more brilliant color, in the size that means less scrolling and searching, and in the style designed with your comfort in mind, including tilt, swivel and height adjustments and a sleek ThinEdge™ bezel ideal for multi-screen arrays. All from ViewSonic, the #1 display brand in the US* for price/performance.

Add stylish ViewSonic® ViewMate® Desktop Collection accessories for the ultimate desktop.

Find out **Where to Buy** at **ViewSonic.com** or call **800-888-8583**

ViewSonic®

Nikon Coolpix 4800: how-tos

Nikon Coolpix 4800
$399.95
www.nikonusa.com

Nikon's 4MP (megapixel) Coolpix 4800 will appeal to photographers who want to shoot excellent photos and explore features without fiddling with a lot of manual controls.

Back To The Basics

The Quick Start Guide, a poster-sized foldout, walks you step-by-step through the basics of setup: taking inventory of accessories, attaching the neck strap, and charging and inserting the Li-Ion (lithium-ion) battery. A drained battery takes about two hours to soak up a full charge, but our factory-fresh unit arrived ready to go. The Quick Start Guide also covers turning the camera on for the first time, which prompts you to set the language and clock with the back-panel Multi-selector: the four-way button with a center button for selecting menu items.

The Coolpix 4800 stores photos on an SD (Secure Digital) memory card, which you need to buy separately. But this doesn't mean you can't start clicking right away. Rather than include a small-capacity starter card, a common accessory with many digital cameras, Nikon gave the 4800 its own built-in memory. It's only 13.5MB, however—enough for seven shots at the highest size and quality preset—so you will need that memory card.

If you use the internal memory, install the included PictureProject software to download pictures to your computer; you can also use PictureProject to edit them. The Coolpix 4800 is PictBridge-compliant, so you can print copies from any PictBridge-enabled printer.

For framing your shots, the Monitor button beside the viewfinder lets you switch between the viewfinder and the back-panel LCD.

The Mode dial mainly offers options that will optimize the camera for numerous shooting situations. In addition to the standard Auto mode for point-and-shoot ease, you can select Portrait, Landscape, Sports, and Night Portrait modes. When you select the Scene option and then press the Menu button, you can browse among 11 more specialized scene modes: Beach/Snow, Sunset, Fireworks Show, etc. To choose one, press the Multi-selector's center button and then press the Menu button to exit.

Unusually, the Scene menu is where you'll also find the five size and quality presets, labeled Image Mode.

For snapping the photo, the 4800 uses the common method of pressing the shutter release button halfway to engage the autofocus. Once the green status light blinks on the display or viewfinder, press the shutter release button the rest of the way to finish shooting.

In the Scenic View setting under the Landscape shooting mode, you can see a guide on-screen that helps you balance the ground and sky of your landscape photo.

Meet Your New Assistant

Except for extremely low-end models and cameras on cell phones, it's hard to find a digicam these days that doesn't feature most or all of the modes we mentioned above: Portrait, Landscape, Sports, and, perhaps less common, Night Portrait. By setting your camera to one of these modes, it adjusts features such as shutter speed, aperture size, and color processing to give you the best shot.

On the Coolpix 4800, Nikon makes these modes even more user-friendly by adding Scene Assist options, which work with both the viewfinder and the LCD. In most cases, the camera superimposes a framing guide over your view so you can compose shots with improved ease.

They're easy to call up, too. With your camera set to any of these four modes, press the Menu button. This opens a graphics-based menu of five to eight choices, depending on the mode. To choose an Assist option, use the Multi-selector to navigate through the icons, press the center button to select one, and press Menu again to exit.

In each menu, the upper-left icon is the basic mode and provides no Assist functions. As you navigate through the other options, on the right side you'll see a labeled thumbnail of the type of composition that guide is intended for.

Portrait and Night Portrait. In each of these, the on-screen Assist guidelines are the same, letting you frame portraits with the subject positioned toward the left or the right side (off-center portraits are usually more visually interesting), plus a centered close-up, a Couple setting for a pair of subjects, and a Figure option for taking a vertical portrait. In each case, the camera will use the framing guide as its autofocus reference point, rather than the center-screen default.

Landscape. Here, the Scenic View option shows a guide that balances ground and sky and keeps a level horizon line. The Architecture option has a useful six-line grid to keep buildings in horizontal and vertical alignment. Two Group settings help you pose people to the left or right of landmarks while keeping both in focus.

Sports. With this mode, you're not shooting stationary objects, and the settings govern camera behavior. In the basic Sports mode and the Sports Spectator setting, the camera fires a burst of shots at 1.5 frames per second. The former permits user focus, and the latter is for a more unpredictably moving target, so you don't have to press the shutter release button halfway to check the focus. The Composite setting lets you fire a two-second, 16-shot burst; then the camera arranges the shots in four rows of four shots each to form a single picture. ▣

BY BRIAN HODGE

Canon PowerShot A85: how-tos

Canon PowerShot A85
$299.99
www.usa.canon.com

The Canon Powershot A85 is a 4MP (megapixel) digital camera with a 3X optical zoom lens that uses CompactFlash memory cards to store your pictures. To start using your camera, first open the battery compartment door and insert the four included AA batteries. Now take the CompactFlash memory card out of its plastic case, open the memory compartment door labeled CF Open on the right side of the camera (when looking at the back), and insert the memory card label side up. Push the card all the way into the slot so that the eject button below the card pops all the way out; then close the compartment door. This included 32MB card will only store 14 pictures at the camera's highest quality setting, making an upgrade to a card with more memory a potentially wise investment.

Now you're ready to power up the camera and get started. Press the On/Off button on top of the camera and then press the Menu button, located just to the right of the LCD. Press the Right arrow button once to enter the Setup menu and then scroll down with the arrow buttons until Format is displayed in the upper-right corner of the screen. Now press the Set button to format your CompactFlash card so your camera can use it. This will erase any pictures on the card, so if you're sure this is all right, select OK and press Set again to start the process. In a few seconds, after formatting is complete, you'll be returned to the Setup menu where you can perform other tasks, such as setting the camera's clock. Press the Menu button again to return to shooting.

Now you can start taking pictures. The A85 has two main modes, Play (sometimes referred to as Playback mode) and Record, selectable with a vertical switch on the back of the camera. The upper position next to the red camera icon is Record mode for taking pictures; the lower position with the blue triangle is Play mode for viewing them. Put the camera in Record mode, frame your shot in the LCD, hold down the shutter release button halfway to focus, and then press it the rest of the way to take your shot. After you've taken a few pictures, put the camera in Play mode to review your work. Press the arrow buttons to move between shots and the Disp. button to show more information about each one.

Once you've added some photos to your memory card, use the included Digital Camera Solution Disc CD-ROM to install the camera's software on your computer. This software will assist you in downloading, editing, and managing your pictures. Now, with your camera off, attach it to your computer's USB

The switch next to the red camera icon (Record mode) and the blue triangle (Play mode) lets you take pictures and review them on the LCD, respectively.

port with the included cable, switch it to Play mode, and turn it on. After a few moments, Windows will detect it and automatically install a USB driver. The first time you connect your camera, a window will appear asking you what program to launch; choose Canon CameraWindow and then click OK. On the next screen, click Set. Now that you've told your computer what software to use, whenever you connect your camera in the future, the Download Image window will be displayed. Then, choose the Start Image Download button to save your photos to your computer.

Stitch Assist Mode: Sew Panoramas Together

The PowerShot A85's Stitch Assist mode lets you take multishot panoramas. When faced with a view that's too wide to capture in a single shot, the camera helps you minimize the seams that are

created when you merge several shots together. With your camera on and in Record mode, rotate the Mode dial on top of the camera to the icon that looks like two overlapping rectangles, representing the shots you'll merge. The Stitch Assist mode viewfinder first shows a miniature version of the frame the camera will take. Start at the left side of your scene and take the first shot. The camera displays the right edge of your first shot on the left side of the screen, letting you line up the left edge of your new shot to prevent any gaps in coverage. After you take each shot, the camera moves it to the left side of the screen so you can line up the next one. Once you're satisfied, press Set to finish the photo.

The camera saves the images you shot in Stitch Assist mode as separate pictures, so once you download them to your computer, you'll need to merge them into one wide photo using the

included PhotoStitch program. Start the PhotoStitch software on your PC by choosing it from your Start menu and then open the pictures that you want in your panorama. You can extend panoramas horizontally, vertically, or both, or they can wrap around in a full 360-degree circle, depending on the direction in which you took each shot of the panorama. Select the correct shape from the Arrange menu and drag and drop your pictures to sort them into the correct order. Next, click the Merge tab and click the Start button. The program finds the best way to place your images and bend them so they fit each other, and then it merges them together. Finally, click the Save tab to select the region of the panorama you'd like to keep. Drag the green box to enclose a rectangular portion of the photo and click the Save button to store it on your hard drive as a new photo. ☒

BY JOSEPH S. BELL

Know How

One Problem, Three Solutions

BY BRIAN HODGE

Welcome to the first installment of "Know How"! In this monthly feature, we'll look at a commonly needed photo fix or editing tool and demonstrate step-by-step how to use it in three of the most popular photo-editing programs: Adobe Photoshop Elements 3.0 ($99.99; www.adobe.com), Jasc Paint Shop Pro 9 ($129; www.jasc.com), and Microsoft Digital Image Pro 10 ($89.95; www.microsoft.com).

For starters, we'll address the dreaded red-eye effect. This results when a camera flash is caught reflecting directly off a person's retinas. Because the retina is rich in blood vessels, it causes a red glow that gives the person a rather demonic look—not the effect you're after when snapping pictures at a holiday dinner with your grandparents.

Adobe Photoshop Elements 3.0

1 In Photoshop Elements' Welcome Screen, choose either the Editor (Edit And Enhance Photos) or the Quick Fix option (Quickly Fix Photos). The Red Eye Tool is available in both. (All screen shots are in Quick Fix.)
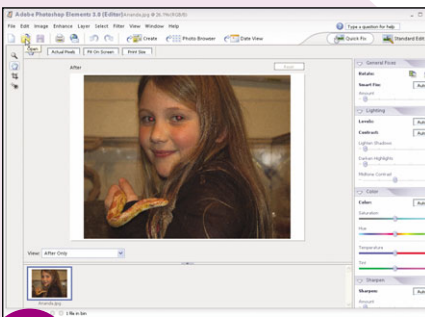
2 Open your photo in the workspace with the Open command.

3 If needed, select the Zoom Tool (it looks like a magnifying glass) in the Toolbar along the left side of the workspace. Then increase the percentage in the Options bar above the photo to make your subject's eyes a more workable size. Click the Hand Tool and drag the eyes into view, if necessary.

4 Select the Red Eye Removal Tool from the Toolbar.
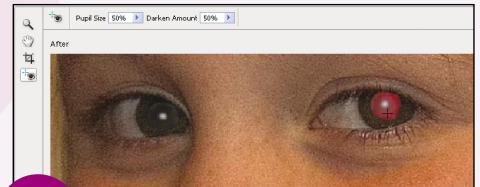
**5** Click the red area of each eye. Elements will automatically darken the pupil.
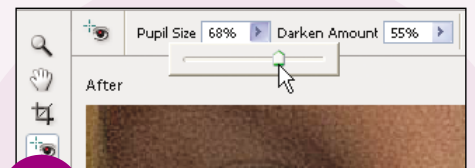
6 To give your subject's eyes the most natural appearance, try the Pupil Size and Darken Amount settings on the Options bar. Unfortunately, these don't alter a fix you've already applied. If you think these settings will further improve your picture, click the Reset button, open and adjust the settings' sliders, and try again.
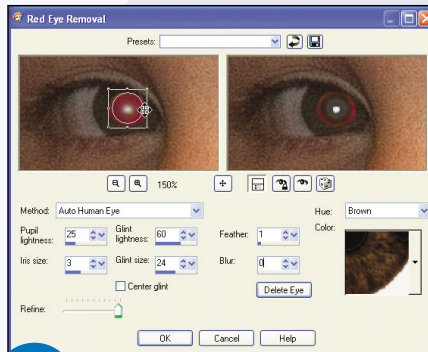
Jasc Paint Shop Pro 9
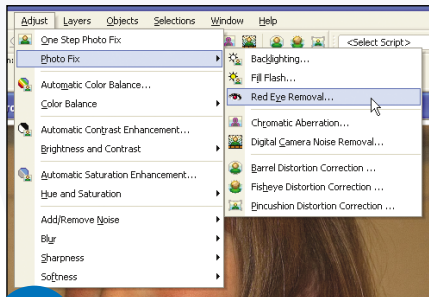
1 With your photo in the workspace, open the Adjust menu and its Photo Fix submenu and select Red Eye Removal. This opens a two-pane workbox—you'll work in the left pane and see the results in the right.
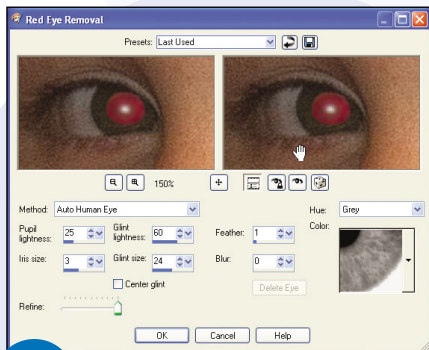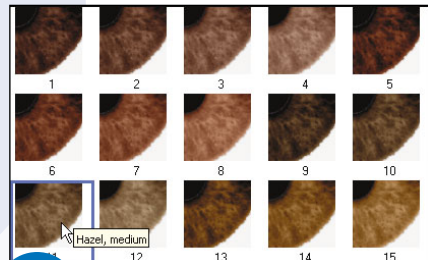
2 Unless your subject's eyes are already in the photo's exact center, click the right pane. This activates the Pan Tool so you can drag the photo until you see at least one red eye. You'll work on only one eye at a time. If needed, enlarge the eye(s) with the Zoom In button (the magnifying glass with the plus sign [+] in it) under the left pane.
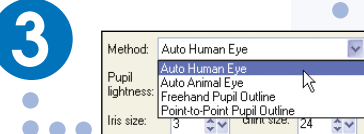
3 The Method menu offers four correction types, but you can fix most red eyes with Auto Human Eye. (The Freehand and Point-To-Point methods are for such situations as partially hidden pupils.)

4 In the Hue menu, select the basic color of your subject's irises. You can then choose a more accurate color by clicking the Color panel and selecting one of the thumbnail swatches.

5 In the left pane, click the red part of the eye; this encircles the correction area. Click and drag the corners of the Control Box using the double-sided arrow to adjust the size. Reposition the box by clicking and dragging the Control Box's edges using the four-sided arrow while watching the effects in the right pane.
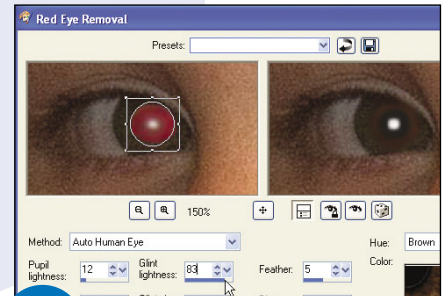
6 Experiment with the six middle controls (Pupil Lightness, Iris Size, etc.) to better blend the corrected area into the existing eye.
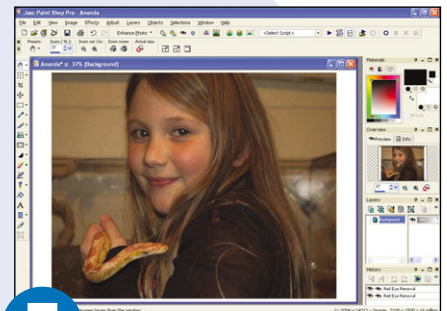
7 If necessary, reposition the photo again so you can repeat the process with the other eye. Your settings stay the same, so the second correction should go much quicker. Click the OK button to view the full photo.

digital studio
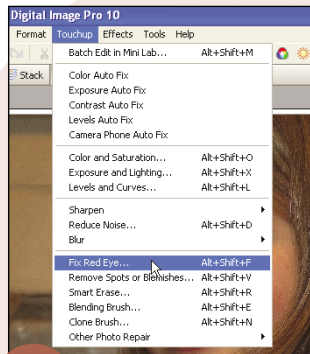
1 With your photo in the workspace, open the Touchup menu and select Fix Red Eye. This opens an instruction panel on the left side that will, for the most part, walk you through the editing steps.

2 The panel's first step offers a one-click Auto Fix. Based on our experience with it—it didn't fix both eyes—it's just as well to bypass it and advance directly to manual methods.
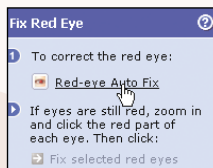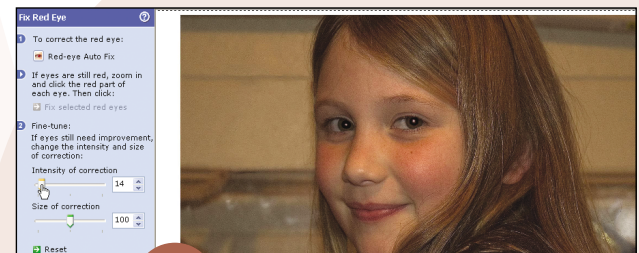
3 If needed, click and drag the Zoom slider above the picture to increase the eyes to a more accessible size.
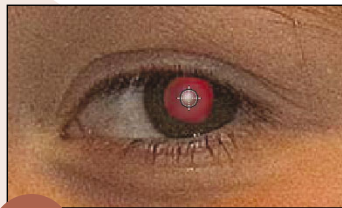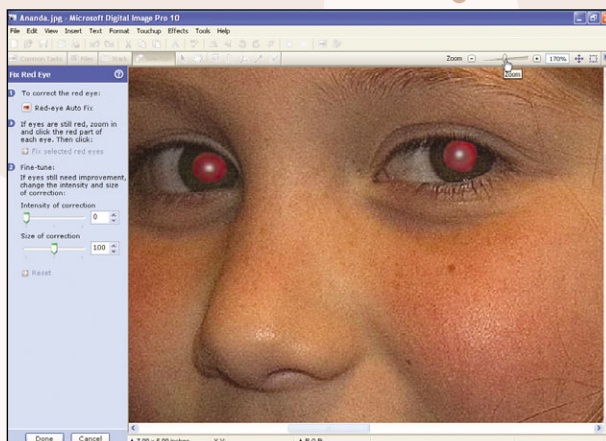
4 After centering your pointer's crosshairs on the middle of the red-dened area, click one or both eyes. Digital Image Pro lets you select up to two eyes.
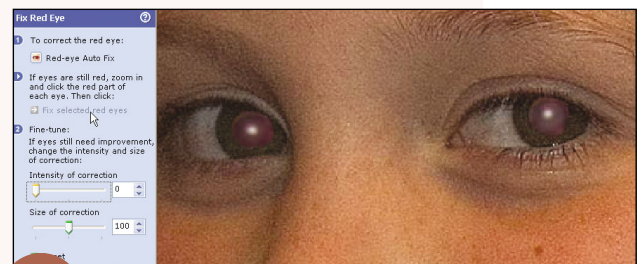
5 Now click the Fix Selected Red Eyes option in the instruction panel. This will place a dark circle over the red.

6 If necessary, go to the Fine-Tune section and drag the Intensity and Size sliders to fine-tune the correction. Don't set the Intensity slider any higher than necessary to cover the red. High values will result in a dense black circle that obscures the pupil's natural glint and leaves the eye looking unnatural.
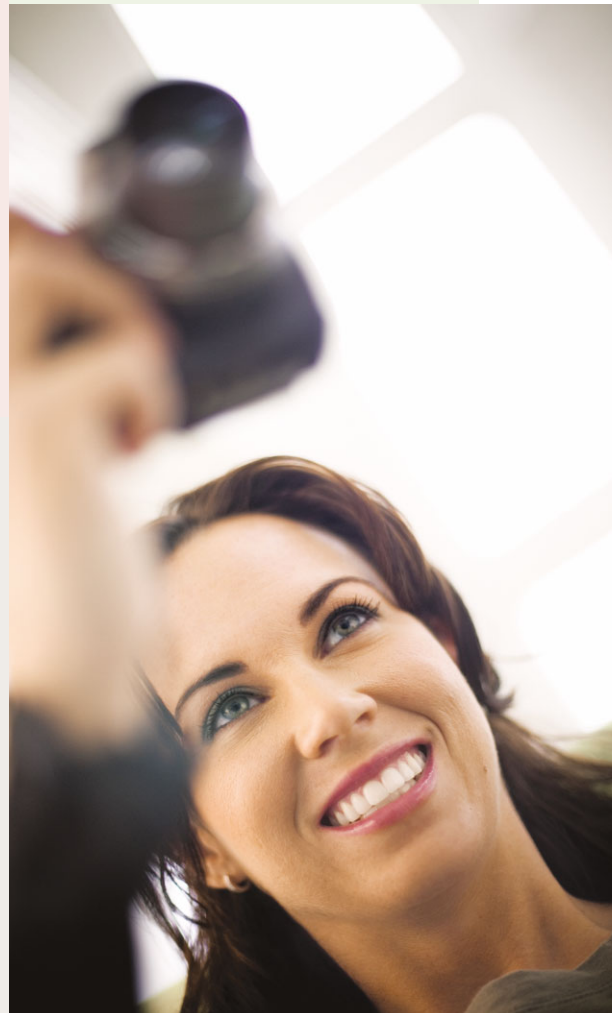
7 Click the Done button.

tips

Digital Photography & Lighting

1 Fine-Tune White Balance

The human eye interprets an object's coloration the same way in a variety of lighting conditions; a camera doesn't. Accurate **white balance**, a camera's feature that corrects how colors appear in different lighting conditions, will ensure that faces and plants look natural in both the evening sun and under a halogen bulb. Almost any digital camera will let you toggle tungsten (indoors) and daylight white balance; better cameras will give you a wider range of options tailored to specific situations. In many cases, the white balance is part of a special shooting mode such as Fireworks, Beach, or Landscape.

2 Adjust For Backlighting

Bright light behind a subject—from a window, a bright blue sky, or car headlights—misleads the camera into exposing for the light source, sacrificing detail in the subject. Your options are: 1) artistically underexpose the subject or overexpose the background (creating a silhouette effect); 2) rearrange where you position your subject so that the subject isn't backlit; or 3) use your flash. If possible, also bounce a removable flash off a ceiling or wall so the fill-in flash doesn't look too garish, and diffuse the light with a diffuser, available at any camera store. You can also diffuse the light with your nylons (really).

3 Overexpose To Correct Brightness

When the scene you're trying to capture is genuinely bright—lunchtime in Vail, say—the camera will attempt to average the exposure over the whole scene to medium, possibly resulting in an underexposed subject and a grayish cast in the final picture (ditto for dark scenes). Easiest fix: Use the camera's built-in Snow mode, which helps prevent underexposing the subject due to reflections from the bright background. Alternatively, tell the camera to overexpose by setting the EV (Exposure Value) to 1 or 2; then shoot and check the **histogram**, the bar graph that represents the range of darks to lights in your picture, to make sure that most of the pixels are on the brighter side, where they should be. Also try bracketing your exposures—manually adjust the exposure for several shots to find just the right exposure setting. In fact, bracketing is your best defense in any tricky lighting situation.

4 Catch The Light At Dusk

A darker scene forces the camera to leave open the shutter longer (anywhere from 1/60 second or longer), recording tiny movements your hand makes during the shot. This, in a blurred image, is called camera shake. Thus, we recommend using a tripod, even when the camera is in Night or Auto mode. You can also increase the camera's ISO setting (Night mode may do this automatically) to help avoid camera shake and capture the light faster. However, this could introduce noise (specks) into the photo, and you'll probably still need the tripod, so why bother?

5 Capture High Contrast

For landscapes, letting the camera do its best to average the intensity in high-contrast scenes usually turns out fine because you likely don't have one part of the shot that you care about more than the others. But if there is a particular prominent detail in a scene (such as a sunny cityscape) you want correctly exposed, switch the camera from Average or Matrix metering to Spot metering. Then maneuver your detail front and center and press the shutter release button halfway to set the exposure (and focus) for this spot. Holding down the shutter release, you can reframe as you please with the assurance that the detail you care most about will be correctly exposed.

BY RYAN TURNER

Talk Is Cheap

VoIP: A New Era In Telephone Communication

VoIP (Voice over Internet Protocol) is a technology that lets a user digitally send her voice to a recipient over an Internet connection. Tie that technology into the phone system, and you have a much improved kind of telephony.

Here's why. POTS, the Plain Old Telephone System that millions of people use every day, works using wires that connect location to location; the enormous cable and wire system circles the globe, making it possible to pick up the handset mounted on your kitchen wall and call a relative in Kansas or a business associate in Paris. But the phone system isn't the only communication technology that travels by wire—the Internet does, as well. True, both modes of communication are becoming increasingly dependent on wireless connectivity, but at their core they remain substantially wired.

Times Are Changing

Not long after the World Wide Web boom of the mid-1990s, software producers began developing ways for users to send voice signals to each other. Unfortunately, the idea only sort of worked. By connecting a microphone and speakers or a headset

to their PCs, two people could engage in voice conversation, although the delays between speaking and hearing on a dial-up connection often made the exercise more annoying than anything else. But if you were trying to save money on phone calls, it wasn't a bad thing to try.

Some developers quickly recognized that the phenomenon of speech over the Internet could be made even more phenomenal if the Internet could hand off its voice signals to the telephone system itself, allowing a PC user to talk to someone who wasn't logged on to the Internet at all. Services began to spring up (MSN was a major example) that made this idea increasingly possible, while completely bypassing long-distance charges. In effect, no matter where the recipient answered the phone, the call itself was local because it originated on the global network. Great stuff, with great potential (not that the phone companies were all that amused). Still, call quality remained an issue because the size of speech data overwhelmed the limitations of connectivity in a dial-up world, which was still in extensive use at that time.

But then came broadband, whose whole point was to transfer data at much faster speeds than dial-up. Transmitting multimedia over the Internet suddenly became a viable activity, especially as servers became more efficient at buffering the transmissions (storing data in advance of sending it to the receiver) so that the recipient would experience few, if any, delays. With these improvements

came the rebirth of the idea of using the Internet as a gigantic conversation service. Software improved to the point where game players, for example, were

Cisco's VoIP phones, such as this 7970G model, are designed primarily for business use.

able to speak to each other using their microphones and speakers or headsets, even while playing bandwidth-gobbling game sessions. If they could do it, why couldn't everybody else? Indeed, everybody else could, and many did. As long as both parties arranged to "meet" online, they could talk to each other with clear signals and little delay.

Not everybody spends the majority of their waking lives online, however, and thus are not available for over-the-Internet voice chats.

The trick to making the Internet a central hub for phone-like communication was, in fact, to let people use their existing telephones with the Internet to make calls. Telephones have alert systems (they ring), and they don't require their users to be on their computers in order to use them. They're an integral part of our lives.

How VoIP Works

VoIP changes the technical nature of phone calls. Standard phone services rely, to a significant degree, on a technology known as circuit switching, in which a phone call opens a series of switches between the caller and the answerer and keeps that series of switches, the circuit, open while the conversation lasts. It works, but it's inefficient and relatively expensive. In fact, the need to keep the circuit open has been the primary reason behind the high cost of long-distance calls, at least until recently; when you made a

Grandstream offers its BudgeTone 100 Series VoIP phones in white and black.

long-distance call from San Francisco to Miami, you basically rented an entire string of switches for the duration of the call. Recently, long-distance providers have increasingly used the Internet for at least part of the call, using VoIP technology.

The Internet uses packet switching, in which data is transferred only when necessary. The sending computer splits the original message into numerous small packets, each with an address that tells the network device where to send it, and these packets work their way (often following vastly different paths) to the addressee. There, the receiving computer puts the packets back together using instructions within

Clipcomm's VoIP phone adapter, the CG-100, can connect your telephone to your Internet.

the packets, and the addressee receives the message. Packet switching on the Internet works the same for email, Web surfing, instant messaging, game playing, and voice communications. Efficiency is high because data transfer occurs only as needed.

There are three major modes of VoIP communication. In the most basic, the two parties connect a microphone and a set of speakers (or use a headset) to their PCs and connect to each other through special software. The best-known example of this mode today is Skype (www.skype.com).

In a more advanced scenario, one or both parties use special devices known as IP or VoIP telephones that look and function like regular telephones but connect to a router or a broadband modem instead of to the phone outlets in the wall. A new version of the IP phone, called the Wi-Fi phone, is now available as a cordless version, making use of Wi-Fi networks in the home or at

VoIP Services

VoIP services are growing constantly. Here are a few of the contenders and what distinguishes one from another.

Service	Best Unlimited Long-Distance Calling Monthly Rate	Features (selected)
AT&T CallVantage (www.att.com)	$29.99 for unlimited calls to the United States and Canada	911 calling, voicemail, caller ID, call waiting call forwarding, three-way calling, conference calling, local number portability
BroadVoice (www.broadvoice.com)	$19.95 for unlimited calls to the United States and Canada, and numerous other countries	Voicemail, caller ID, call waiting, call forwarding, three-way calling, calling ID blocking, do not disturb
Packet8 (www.packet8.net)	$19.95 for unlimited calls to the United States and Canada	Voicemail, caller ID, call waiting, call forwarding, three-way conferencing, caller ID blocking, local number portability
Vonage (www.vonage.com)	$24.99 for unlimited calls to the United States and Canada	911 calling, voicemail, caller ID, call waiting, call forwarding, three-way calling, virtual numbers, caller ID blocking, local number portability

other hotspots, including coffee shops or on college campuses.

Finally, at the level most transparent to the user, one or both parties use their standard telephone set to make and/or receive calls, with the Internet providing the go-between. Here, a device known as an ATA (Analog Telephone Adapter) converts the voice signals from analog to digital so they can travel over the Internet.

VoIP's Special Features

Given the price drop in long-distance services in general, especially with today's flat-rate, long-distance packages often covering both the United States and Canada, the obvious question is: What could VoIP possibly offer that standard and cellular phone services do not? Quite a bit, as the following list demonstrates. And as any VoIP provider will tell you, there's much more to come.

Price. VoIP services tend to be cheaper than traditional phone services. Vonage (www.vonage.com), for example, offers residential service of $14.99 per month including 500 minutes of calls to anywhere in the United States and Canada or $24.99 for unlimited calls to those two countries. See the "VoIP Services" sidebar for other examples, along with a selected listing of the wide range of features they provide.

Any area code you want. If you have always wanted a phone line with a specific

Packet8's device, shown here, is one example of a videophone you can use with VoIP service.

area code and exchange not in your region (such as a Manhattan or Beverly Hills exchange), your VoIP service will be able to provide it as long as it offers service in that location. For businesses, this can be a godsend, giving you a telephone presence in a city where your clients are located, meaning they can call you, or you them, without accruing long-distance charges. For individuals, this feature is obviously useful for getting rid of charges for calling relatives or engaging in long-distance romantic relationships.

Virtual numbers. Most VoIP providers add a kind-of extended version of what we outlined above, letting you choose a specific area code and exchange as your main number but then also letting you add one or more "virtual numbers" that use different area code and exchange combinations. Your outgoing calls still originate from the exchange to which your main number is assigned, but people can call you from your virtual number's exchange, incurring long-distance charges (if any) only to that exchange.

Taking trips. Once your phone number is associated with your VoIP adapter, you can take your phone number with you as you travel. Simply pack the phone adapter in your suitcase and then plug it into a broadband connection at your destination (your hotel room, for instance). Connect a standard analog phone to the adapter and start making

The Teledex IP250D is a two-line VoIP phone with hands-free capability.

Top 5 Reasons We Like VoIP

1. We can call Mom on Mother's Day free, even though she lives across the country.

2. Our colleagues in another state can call us for information without costing the company long-distrance charges.

3. We pay for phone service already. Why not add more features without an added cost?

4. We love traveling, so we can take our phones with us and make calls from our hotel as if we were in our local calling area.

5. Most likely, we can keep our current phone number when we move. At least our family only has to learn a new address!
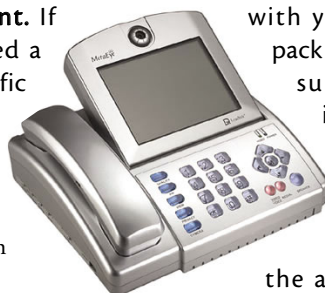
and receiving calls. With the phone adapter, you are using the same phone number that you had at home. As far as your callers are concerned, you haven't gone anywhere.

VoIP's Snags

Though VoIP has clear benefits and is continuing to improve, the technology has several downsides, as well.

Call quality. Often, calls made through a VoIP provider over a broadband connection are as clear as through the standard phone system. However, VoIP calls can degrade more easily than standard calls, getting slightly choppy and even slightly delayed as your network becomes congested and as your broadband provider suffers brief interruptions of signal. Indeed, the consistency of call quality with VoIP services had not yet reached the level of consistency of standard calls. That said, overseas calls using VoIP services can be significantly better than standard calls, so your choice of service depends on your particular calling needs.

Local number portability. Some VoIP services offer to switch your existing phone number to their system, and some do not. If you want to retain your current number, verify with your area's service providers that you have that option. If it's not possible and you still decide to get the service, you'll need to contact your family, friends, and business associates to give them your new number—not a pleasant option if you have a rich social or business life.

Power outages. Standard telephones continue to work even during power outages, but VoIP phones rely on electricity. The actual handset may not, but the broadband modem, VoIP adapter, and router all do. For that reason, even many VoIP service providers suggest that you have either a cell phone or a standard phone line available in case of an outage.

Emergency services. This is the most important consideration for anyone thinking about switching to VoIP as her only phone line. The current 911 emergency telephone system does not function through VoIP. Land lines have a specific location, so phone numbers can be tied to addresses. VoIP is not location-based. An increasing number of

VoIP providers will connect a 911 call to local emergency services based on the address you have on file with your VoIP provider. Find out how your preferred service provider handles this issue before subscribing.

The Upshot

Right now, you could most certainly switch to VoIP for all your phone uses. It's reliable enough and useful enough, and, without question, it's a cost-effective and feature-rich choice. Because of the issues surrounding 911 calling and service loss during power outages, VoIP works best at this point as a second line rather than a primary line. If you're already paying for a second phone line and you have broadband in your house, consider getting rid of the second line, possibly cutting some of the features on your first line, and subscribing to a VoIP service for the bulk of your long-distance and traveling needs. If you're thinking about adding a second line, definitely consider VoIP.

If you have only a land line and you're not ready to part with it yet, then think about trying VoIP for a limited time to see if it serves your needs. You'll never know what you think of VoIP until you test it, and over the course of a month or so of steady use, you'll have a pretty good idea of what you think. In the meantime, the services will almost certainly continue to improve. **ce**

BY NEIL RANDALL

Gateway MP3 Photo JukeBox: how-tos

Gateway MP3 Photo JukeBox
$249
accessories.gateway.com

The Gateway MP3 Photo Jukebox (GCM-4) is a small, sleek unit, and comes with several sets of cables. It has an AC adapter, a USB cable, earbud headphones, and a connector cable with a USB port for your digital camera. The GCM-4 draws power from the AC adapter or the USB port directly, and the AC adapter is the fastest way to charge the unit. Note that on one end of the cables' connectors is a small jack next to the cable, which is the AC adapter receptacle. Plug the AC adapter into the connector and then plug the connector into the GCM-4. The control pad is illuminated blue when charging; it takes about three hours to fully charge the unit.

Turn on the unit by pressing the Play button. You'll see a little electrical plug icon in the upper-right of the screen, which indicates that the unit is charging. Hold down the power button to turn

the player off, but don't do that right now. Just plug in the USB cable to your computer, and plug the other end into the MP3 Photo Jukebox.

Because it's compatible with Windows Media Player 10, you can autosync the GCM-4 with your PC's music library and your playlists, making sure your Jukebox has the same music collection as your PC. So if you have Windows Media Player 10 installed, you'll get a pop-up window that says MTP Media Player when you connect your GCM-4 to the PC, which will prompt you to select either Synchronize Media Files To This Device or Take No Action. (MTP stands for Media Transfer Protocol, which standardizes the way Windows computers transfer data to portable media devices.) For now, choose the Take No Action option.

From your Desktop, click My Computer. There, you'll see an icon for

Gateway MP3 Photo Jukebox. This device also serves as a simple external storage drive (the GCM-4 stores 4GBs of data) without having to install special drivers. Double-click the Gateway icon, and you'll see Data and Media folders. You'll put music and picture files in the Media folder.

Now, insert the Gateway CD into your computer. It contains a few utilities and Media Player 10. The main utility will upgrade the firmware of the GCM-4, though no updates were available at press time. It'll also install Napster (which is a paid, legitimate music download service) on your system.

Play That Funky Music

The most straightforward way of getting music to your player is simply to drag and drop files from your music folder (probably My Music in the My Documents folder) to the Music folder

ce @home

Attach the included USB 2.0 cable to your MP3 Photo Jukebox when you're ready to sync the device to your computer.

on your device. Click the My Music icon on your Desktop (or My Documents and then My Music). Click My Computer, Gateway MP3 Photo Jukebox, Media, and then Music.

But let's use Media Player. Start the program and go to the Library tab. In the lower-right corner you'll see a green Add To Library plus-sign (+) icon. Click the icon and select By Searching Computer. For the Browse option, navigate to the My Music folder (assuming that's where you keep your music). If it's not already selected, select the New Files And Existing Files In The Library (Slow) radio button. Media Player 10 will catalog all of your PC's music in its library.

After you connect the player to the PC, Media Player 10 will find the Gateway device and open a pane on the right. You can manage all of the music on your PC through the pane on the left. There are three icons: Start Sync, Edit

Playlist, and Set Up Sync. Click the Edit Playlist button. A window opens with your music sorted by artist. Click the artist and you'll get music sorted by album. Click album, and you'll see the song. Clicking the song adds it to the right pane. When you've selected all the songs you want to move to the player, click the Start Sync button. The player has USB 2.0 support, but even filling up 2GBs can take a few minutes. Your player's LCD should display Busy during this time. Depending on the size of your music collection, you could have as many as 1,000 songs on your MP3 Photo JukeBox when you're finished.

A Picture Worth 1,000 Lyrics?

If you're constantly overloading your digital camera's flash memory, you might enjoy the GCM-4's feature that lets you transfer pictures directly to the MP3 Photo Jukebox from your

digicam; you can free your camera's memory without waiting to download them to a PC first. Check www .gateway.com/photojukebox to see which cameras the GCM-4 supports; it only transfers pictures directly from a few cameras on the market. And check Gateway's site for new firmware updates to the GCM-4, which may add more camera compatibility.

To transfer your pictures, plug the USB adapter into the player, plug the camera's USB cable into the camera and the connector, and the player will ask you to upload files. Select Yes by pressing the Right arrow button on the controller. You might wish you had more than 4GBs given some of the 5MP cameras out today, but the convenience of a quick, portable digital photo archive can help make it unlikely that you'll run out of digital film. ⊂ℇ

BY BERNARD YEE

PRISMIQ MediaPlayer: how-tos

PRISMIQ MediaPlayer
$199
www.prismiq.com

T he PRISMIQ MediaPlayer lets you access your music, movies, and photos from any television in your home. It's a small set-top box, about half the size of an average audio component. It streams media from your PC and displays it on your TV screen.

To get started, install the included MediaManager software before hooking up the MediaPlayer. Insert the CD, follow the on-screen prompts, and choose Typical for the software installation. Once you complete the installation, a dialog box asks where you want it to search for and index media on your PC. Click the Scan button and navigate to the top directory where all of your media is stored, which is usually My Documents. Then, select OK. When the scan finishes, the green MediaManager window appears on your Desktop.

Now, connect the MediaPlayer. The MediaPlayer has a composite audio/video cable, an S-Video cable, a remote control, and an Ethernet cable for connecting it to your home network. If you want to connect wirelessly, you'll need to buy a wireless PC card separately. Visit the PRISMIQ Web site (www.prismiq.com) for a complete list of cards it supports. While you're at it, you may want to buy the PRISMIQ Media-Player Wireless Keyboard ($29). This way you can enter data on Web pages while you're browsing the Internet.

Connect the composite audio/video cable to an available set of inputs on your TV. Because you'll be viewing higher-resolution content, if you have an available S-Video input on your TV, use the included S-Video cable for the clearest picture possible. Finally, plug one end of the power adapter into the MediaPlayer and the other end into the wall outlet.

Next, turn on the PRISMIQ MediaPlayer. It takes a few minutes to boot up and initialize the first time you power it up. If all goes well, you'll see the main interface screen.

Use the wireless remote to choose the icons: Video, Audio, Images, Home, Web, and Chat. If you have the keyboard, navigate the cursor by clicking the directional pad with your right hand and clicking Select with your left hand. Otherwise, you can control everything with the remote in your right hand. To browse the Web, press the Web button on the remote control or click the Web icon on the main screen. We found that not all of the included bookmarks work, so be sure to type in a Web page URL at the top of the screen to test your connection.

Streaming Audio & Video

With the PRISMIQ MediaPlayer, you can listen to music and watch video stored on

The PRISMIQ MediaPlayer ($199; www.prismiq.com) gives you a simple way to stream media from your computer to your television.

your PC. This way you can relax and enjoy your entertainment system in your more spacious living room instead of crowding everyone around the computer screen.

To play music or watch videos, scan them into MediaManager. The manual sometimes refers to this as "Import," but you're not making duplicate copies, so it won't consume space on your computer's hard drive. Think of the Media-Manager as the central repository and index for the MediaPlayer. Although MediaManager runs on a single PC, you can use it to scan and index shared drives from other computers on your home network.

To play a video or music file from the MediaPlayer, click Home to go back to the main screen. Select and click Audio or Video. Move the cursor to select a song from the list on the TV screen. Double-click Select and the file plays. We heard a few stutters in the audio

playback when trying to play uncom-pressed WAV (standard PC audio file format) files, even when using the faster, wired Ethernet connection to the MediaPlayer. MP3s are no problem, however. Most people import their CDs as MP3 files to save space on their hard drives, so this shouldn't be an issue for most users. Video files will first appear in a window but will expand to fill the screen within a few seconds.

You can also listen to Internet ra-dio using the MediaPlayer. To add an Internet radio station, open the MediaManager window on the PC. Select Internet Radio under My Media files, open a Web browser, and go to a Web site that has Internet radio sta-tions in PLS (MPEG playlist file) format. Drag and drop a station you like into the MediaManager window. Enter the name of the station in the dialog box. The station is now available from the MediaPlayer.

To listen to a station on the MediaPlayer, return to the main screen by clicking Home. Next, select and click Audio or press the remote's Audio button. High-light Internet radio with the directional pad and press Select. A list of Internet radio stations will appear. Move the cursor to select one from the list and press Select. The radio station will begin playing. Depending on the station, some-times the audio playback will pause as the player buffers the radio stream from the Internet (meaning that it temporarily stores data for smoother playback).

The PRISMIQ MediaPlayer lets you use any TV in your home to browse the Internet and instant message your friends and family. By streaming audio and video from your desktop PC, you get simple and cost-effective access to all of your movies, music, and photos by remote control, right from your easy chair. ⊂∈

BY JAMIE LENDINO

tips

Windows Media Player 10

1 Restore The Menu Bar

WMP10 installs with the menu bar hidden from view. This has caused confusion for more than one user because the menu bar comes in handy. To restore it, click the Access Application Menus button (the Down arrow in the upper-right corner) and choose Show Menu Bar from the pop-up menu. If you prefer to leave it hidden, you can still quickly open all menus from this same pop-up menu.

2 More Than Skin Deep

Skin Mode (click the button in the lower-right corner) shrinks the player to a smaller but still fully functional size. It can look like almost anything, too. Think of a **skin** as a complete makeover for WMP; it's the same player with the same features, but the skin gives it a totally different appearance. To slip into something new, select Skin Chooser from the View menu. From here, you can also download more skins. Or go directly to WMPlugins.com (www.wmplugins.com), where you can choose from around 170 third-party creations. You can add downloaded skins to your player by opening Windows' My Computer option and placing them in the folder at the end of this file path: C:\PROGRAM FILES\WINDOWS MEDIA PLAYER\Skins.

3 Quality Control

While we're investigating the Rip Music Options, check out the Audio Quality slider. For every format but Windows Media Audio Lossless, this sets the bit rate used for encoding music (the Kbps [kilobits per second] figure displayed), thus striking a balance between file size and audio fidelity. There's no reason to treat this as a set-and-forget feature. You can make the most efficient use of space by adjusting this slider according to the material you're encoding. Low to medium settings (such as 128Kbps for MP3 or 96Kbps for WMA) are usually fine for dense material without much dynamic range (volume shifts), such as dance music. For more delicate material, such as classical or folk, higher settings will preserve the nuances better.

4 Minimize The Player

Even if you click the Minimize button to clear WMP (Window Media Player 10) from your screen, you can still access its basic controls. To set your system to display them in the Taskbar, right-click an empty spot on the Taskbar and from the pop-up menu, choose the Toolbars submenu and then select the WMP option.

5 I Want My MP3

With version 9 of WMP, you couldn't rip tunes from your CDs into MP3 format without first downloading and installing a special MP3 encoder pack, a bothersome oversight, considering that MP3 is digital music's most popular format. With version 10, Microsoft has finally seen the light and added built-in MP3 conversion capability. But you still have to dig deep to instruct the player to use this format; otherwise, you'll convert to the default WMA (Windows Media Audio) format: Open the Tools menu and choose Options. In the dialog box, click the Rip Music tab. Open the Format pull-down menu, choose MP3, and click OK.

BY BRIAN HODGE

First Glimpse Advertising Section

This special advertising section presents the latest consumer electronics products now coming on the market.
Browse through these First Glimpse pages to learn about new products before they appear on your local store shelves.

Big Theater Performance Without The Clutter

**Denon D-M51DVS DVD Surround Receiver
& 2.1-Channel Speaker System**
MSRP: $799
www.usa.denon.com

Continuing with Denon's acclaimed attention to quality build and high standards of audio and video excellence, this new product brings you the most lifelike theater experience without the need for a degree in engineering.

The DVD Receiver (ADV-M51) Includes:

- **Dolby Virtual Speaker**: The ADV-M51 is equipped with Dolby Virtual Speaker, a revolutionary surround format developed by Dolby Laboratories. Dolby Virtual Speaker effectively allows listeners to enjoy the surround sound effects of multi-channel playback with just two front speakers connected to a DVD system equipped with power amps for the two front channels. Because listeners do not need to set up

center or surround speakers or worry about correct placements, they also save space.

- **Dolby Headphone**: Dolby Headphone allows listeners to achieve the same acoustic quality through headphones as they can from the speakers. This means that listeners can enjoy the dynamic surround sound of their home theater in the middle of the night, when neighbors might otherwise be disturbed.

- **32-bit Floating Point DSP**: Hammerhead Sharc (MELODY100), the DSP (digital signal processor) from Analog Devices, is used for the decoder to further boost digital signal processing capability and also provide the highest dynamic range. Faster processing speed results in more complete surround decoding.

The ADV-M51 Also Includes . . .

- Dedicated headphone amplifier
- DVD auto power off
- Progressive scan
- Plays JPEG files recorded on CD-R/RWs
- Plays Kodak Picture CDs
- Equipped with optical digital I/O jacks
- Tone controls and SDB (Super Dynamic Bass) circuit
- Wide selection of surround modes
- Basic decoding functions: Dolby Digital, DTS (Digital Theater System), PCM (pulse code modulation)

- Surround formats (Dolby Virtual Speaker and Dolby Headphone using Dolby ProLogic II Decoder)
- Plays MP3 and WMA files
- On-screen display
- Programmed play: Up to 20 preselected tracks
- 40-station FM/AM preset memory
- A variety of timer functions: Everyday, Once, and Sleep
- System remote control with preset memory, for ease of use and functionality
- Low power consumption during standby

DENON

New Jasco GE PC Cam Brings Out The Glam

Jasco GE GlamCam
MSRP: $99.99
www.jascoproducts.com

The new GE PC Cam, affectionately called the GlamCam, is a multipurpose Web camera that flips open to reveal a mirror on one side and the camera's color LCD screen on the other side. It can record video, and you can use it for instant messaging or video conferencing while connected to the computer or as a portable digital camera.

The GlamCam is similar in design to a foldable, flip-style cell phone, so you can easily stow it away in a briefcase, purse, or pocket. Unlike most multicams, the GlamCam offers a color LCD screen to view photos as they are taken to ensure your photos are exactly what you expect them to be. The Play Back feature allows photos to be reviewed on the color LCD in a slideshow format, so you can share photos with friends and family literally at the push of a button.

With the GlamCam, users can check for out-of-place hair and refresh lipstick or makeup before having a picture taken or joining a video conference. The small size and chic design make this camera a perfect addition to any ensemble.

The GE GlamCam won the 2005 International CES "Technology Is A Girl's Best Friend" (TechGirl) Diamond Product Showcase award.

GE GlamCam Features

- Convenient mirror so you always look your best.
- All that's required to recharge the camera is a computer USB port, so you never need to lug around a supply of heavy batteries.

Mintek MDP-1010 Portable DVD Player
MSRP: 499.99
www.minekdigital.com

Digital Entertainment In One Box

The MDP-1010 is the latest addition to the Mintek line. With a 10.2-inch, 16:9 TFT (thin film transistor) monitor, it offers the widest viewing angle available: nearly 180 degrees. This represents a 118% improvement over a conventional 7-inch screen. The MDP-1010 weighs in at a slight 1.68 pounds.

Features include:

- Two built-in speakers
- Antishock system
- S-video and two-channel audio inputs
- A/V input/output jacks

- Headphone jack
- Memory card reader
- USB port
- Optical output
- High-capacity rechargeable Li-Ion battery
- Multifunction remote control
- Car power adapter

Mintek

Audiovox Tri-Band GSM Smartphone For AT&T Wireless

Audiovox SMT5600 Tri-Band GSM Smartphone
MSRP: $199.99
www.audiovox.com

Features include:

- Microsoft Windows Mobile 2003 SE software for smart-phone
- Tri-Band GSM (Global System for Mobile Communications) 850 / 1800 / 1900MHz
- GPRS (General Packet Radio Service) class 10
- Built-in CMOS (complementary metal-oxide semiconductor) VGA (Video Graphics Array) camera with 4X digital zoom and camcorder
- Voice recorder
- Built-in Bluetooth
- 2.2 inch, 176 x 220 pixels TFT (thin film transistor) LCD

- Built-in MiniSD (Mini Secure Digital) card slot
- Infrared IrDA (Infrared Data Association) SIR (Serial Infrared) port
- Built-in speakerphone
- Microsoft Windows Media Player 10
- Preinstalled applications, such as Microsoft Outlook, Contacts, and To Do List
- Weighs less than 3.6 ounces

AUDIOVOX COMMUNICATIONS

Creative I-Trigue 3400
MSRP: $129.99
www.creative.com

Stylishly Perfected Design & Impressive Audio Clarity

Fashionable and functional, the Creative Labs I-Trigue 3400 impresses with its overall ultra-sleek styling captured in two satellite speakers and a subwoofer. This 2.1 speaker system cleverly integrates three one-inch titanium micro drivers in each satellite speaker, as well as a 6.5-inch long-throw driver in the subwoofer. The result of this audio engineering is an optimum balance of lows, mids, and highs, delivering impressive sonic accuracy and clarity with a clean, strong bass.

The Creative I-Trigue 3400 not only complements your PC or notebook, but, thanks to the additional auxiliary line-in on the wired remote, you can also use the included

auxiliary input cable to connect the speakers to your MP3 player or any portable audio device, without the need to turn on your PC. What's more, a bundled video game adapter extends your connectivity to include TV, VCR/DVD players, game consoles, or other home entertainment devices.

Impressive audio experience coupled with head-turning looks makes the Creative I-Trigue 3400 stand out among the crowd.

Get CREATIVE

**Creative Sound Blaster
Audigy 2 ZS Notebook**
MSRP: $129.99
www.creative.com

Premium Sound Blaster Quality For Your Notebook

Notebook PCs are increasingly popular, replacing bulkier desktop PCs in many cases. As notebook processors, graphics, and hard drives make significant technological strides forward, sound quality and performance have kept notebooks from being the best platform for music, games, and movies. Creative is changing notebook audio forever with a new sound card that's specifically designed for notebooks. PCMCIA (Personal Computer Memory Card International Association) Sound Blaster Audigy 2 ZS Notebook packs the same quality and performance found on high-end Sound Blaster-equipped PCs into a compact PC card that fits into your notebook's available PCMCIA slot.

Offering something for everyone, this notebook sound card will turn your notebook into a THX-certified home entertainment system. MP3 music sounds noticeably better with 24-bit Advanced HD playback that's up to 256 times clearer than built-in notebook sound. Plus, EAX music settings, such as Smart Volume Management and Audio Cleanup, will enhance your music listening experience. Games will play smoother, more even games that weren't playable before, with hardware-accelerated audio for faster frame rates and realistic EAX gaming effects that make your games come alive. Additionally, both games and movies are more immersive with revolutionary positional audio that gives you compelling surround sound.

Get **CREATIVE**

Take Your Memories To Remarkable Places

Kodak EasyShare Z700 Zoom Digital Camera
MSRP: $399 (Price includes Printer Dock Series 3.)
Camera sold separately beginning in April.
www.kodak.com

Designed for value-conscious, entry-level, "zoom seeking" picture takers, the Kodak EasyShare Z700 Zoom Digital Camera offers 5X optical zoom; letting people get much closer to a subject than the 3X zoom lenses most commonly found in cameras in this price range.

The 4MP (megapixel) Z700 camera also includes many of the features that have made the Kodak EasyShare system so successful, including multiple scene modes, automatic picture rotation for an image that is always right side up, Kodak Color Science technology, EasyShare software, high-quality A/V, and the exclusive Share button.

With the EasyShare Z700:

- Get close to your subjects with 5X optical zoom
- Get closer with 4X advanced zoom (for 20X total zoom)

- Create quality prints up to a size of 20 inches x 30 inches
- Get rich, vibrant color under a variety of lighting conditions with the exclusive Kodak Color Science technology
- Capture consistently crisp, precise pictures thanks to the autofocus system with assist lamp

On-camera Share button:

- Simple sharing starts right on the back of the camera

- Lets you tag your favorite pictures to print or email later
- Favorite mode shows off your favorite pictures anytime, anywhere in an on-camera picture collection

Kodak

Kodak Professional 1400 Digital Photo Printer
MSRP: $549
www.kodak.com

Get High-Quality Photos At Home, In The Studio, Or On Location

Whether in a studio, on location for proofing, or at home for final printing and displaying, this robust desktop printer produces one 8- x 12-inch, one 8- x 10-inch, two 6- x 8-inch, two 5- x 7-inch, or four 4- x 6-inch photos per sheet, and the water-resistant photos last a lifetime. The Kodak Professional paper and ribbon consumables are bundled in matched volumes to provide optimum color density for

every print, eliminating worries associated with low ink levels. Consumables, including paper available in 50- and 25-sheet packs, are priced competitively to similar offerings on the market.

Features include:

- 90 seconds per print

- 50-sheet paper capacity
- Gloss and matte finish output available for professional portrait applications
- Accepts A4, 8.5- x 14-inch, and 8.5- x 12-inch paper sizes
- Maximum Image size: 8.27 inches x 12 inches
- USB 2.0 interfaces
- Apple and Windows printer drivers

- The printer, part of the venerable family of Kodak Professional thermal printers that includes the ML-500, 8500, and 6800 printers, comes with a one-year warranty.

Kodak

Kodak EasyShare Z740 Zoom Digital Camera
MSRP: $499.95 (Price includes
Printer Dock Series 3.)
Camera sold separately beginning in April.
www.kodak.com

Get Closer To Perfection

The Kodak EasyShare Z740 Zoom Digital Camera is ideal for people who want to get close to their subject but still enjoy the simplicity of a point-and-shoot digital camera. Its powerful 10X Kodak Retinar aspheric, all-glass optical zoom lens can quickly zero in on a small object or distant scene, picking up the detail, color, and textures that a less powerful lens would overlook. The 1.8-inch, high-resolution, indoor/outdoor LCD screen and electronic viewfinder are designed for previewing a scene or reviewing and sharing shots just taken.

In addition, the 5MP (megapixel) EasyShare Z740 camera includes more advanced (yet still simple to use) features to help people get exactly the pictures they want. These include 18 scene settings (such as Party, Sport, and Portrait) for various environments, continuous autofocus for crisp pictures, first and last burst modes for action photography, color options (such as black and white and sepia), and even PASM (program, aperture priority, shutter priority, and manual) modes for greater control and creativity. The exclusive Kodak Color Science image processing chip helps deliver vibrant, accurate colors time and time again.

As with all Kodak EasyShare cameras, the Z740 includes the Favorites feature, which lets people store dozens of pictures in

internal memory for anytime, anywhere sharing; the Share button for designating pictures for emailing or printing; popular EasyShare software for computer-based picture viewing, organizing, and sharing; and even high-quality video (640 x 480 pixels) for recording and sharing life in action.

Z740 camera owners can also take advantage of a range of accessories for additional creativity.

More EasyShare Z740 features include:

• Get close to your subjects with 10X optical zoom and 5X advanced digital zoom (50X total zoom)

• Create unbelievable quality prints up to 20- x 30-inch images with 5MP

• Get rich, vibrant color under a variety of lighting conditions with the exclusive Kodak Color Science Chip

• Capture consistently crisp, precise pictures thanks to the autofocus system with assist lamp

Kodak

Kodak EasyShare Printer Dock Series 3
MSRP: $149
www.kodak.com

Pictured here with the Kodak EasyShare Z740 camera

One Touch To Real Kodak Pictures In Seconds

The new Kodak EasyShare Printer Dock Series 3 is packaged with new Kodak EasyShare Z740 and Z700 zoom digital cameras (which are also compatible with the Imagelink system). The Printer Dock Series 3 will also ship as a stand-alone product beginning in May 2005.

Designed to simplify at-home picture printing, the Imagelink system was recently introduced by a group of the world's largest consumer digital photography companies. Consumer digital cameras from Eastman Kodak, Konica Minolta, Nikon, Olympus, Pentax, Ricoh, and Sanyo will provide effortless, one-touch picture printing from snapshot printers that incorporate the Imagelink print system, including new Kodak EasyShare printer docks.

Pictured here with the Kodak
EasyShare Z700 camera

With the Imagelink print system, users place their digital cameras directly on printer docks, and then press a single button to make snapshot-sized pictures in seconds.

With the Kodak EasyShare Printer Dock Series 3, consumers can:

• Create durable, waterproof pictures that last a lifetime

• Use with or without a computer
• Use with Imagelink Print System-compatible products
• Use with PictBridge-enabled digital cameras

Kodak

Kodak EasyShare Picture Viewer
Available May 2005; MSRP: $149.95
www.kodak.com

Simple To Share Anytime, Anywhere

The Kodak EasyShare Picture Viewer, which is approximately the size of a credit card, allows consumers to keep their favorite digital pictures by their side at all times and then display one or all for family and friends whenever the opportunity arises. With a crystal-clear, 2.5-inch high-resolution display, it stores up to 150 favorite digital pictures.

To do this, users simply synchronize the Picture Viewer with a computer-based picture collection using the included Kodak EasyShare software. Then they can view these favorites or hundreds more when using the expandable slot that accepts SD (Secure Digital) cards or MMCs (MultiMediaCards). Single view and slideshow features are accessible via the easy-to-use menu and four-way navigation buttons.

Helping people stay better connected through picture sharing, the Picture Viewer lets people mark their favorites for printing or email with the simple touch of the exclusive, red-jeweled Share button. Then, by simply placing the viewer (which is compatible with the new Imagelink print system) on a Kodak EasyShare Printer Dock Series 3, you can print the selected pictures in as little as 90 seconds each. The device can also be connected directly to printers with PictBridge technology for direct picture printing. The Picture Viewer incorporates a rechargeable Li-Ion battery, which provides up to three hours of picture-viewing time when fully charged.

Kodak

Sima First Alert AM/FM Public Alert Radio
MSRP: $129.95
www.simacorp.com

A New Way To Keep Your Family Safe

First Alert brand Public Alert Radios give you the life-saving advantage of an automatic warning before severe weather and other emergency conditions arise. Designed for use before, during, and after emergencies, these radios meet the new CEA (Consumer Electronics Association) standard for Public Alert devices.

The Public Alert Radio is a must-have part of any home emergency preparedness kit.

The AM/FM Public Alert Radio (model WX-268) receives NOAA (National Oceanic And Atmospheric Administration) broadcasts plus AM/FM/EAS (Emergency Alert System).

Features include:

- Round-the-clock emergency coverage NOAA weather band with AM/FM clock radio
- Receives 79 message types, including Amber Alert and 911 Call Outage, compared to 39 types for non-Public Alert radios

- Scrolling LCD of message information in English or Spanish
- Digital SAME (Specific Area Message Encoding) technology
- Automatically sounds a loud alert siren when emergency conditions occur in your area
- Customizable alert settings, so you can block out unwanted events
- Upgradeable
- Monitors EAS and NOAA broadcasts around the clock
- Entire state and country database built in for easy setup
- Backlit display with tilt screen for easy viewing
- 24-hour battery backup protection

SIMA ®

Delphi XM SKYFi2
MSRP: $129.99
www.delphi.com

Take XM Satellite Radio With You

The Delphi XM SKYFi2 has several exciting new features, including the first-ever pause and replay functions for satellite radio. With SKYFi2's built-in wireless FM transmitter, it's never been easier to take XM with you.

The Most Advanced Plug-and-Play Receiver Available

Combined with a Home Adaptor Kit, Vehicle Adaptor Kit, or the SKYFi Audio System, a SKYFi2 receiver allows you to enjoy XM satellite radio in the home, on the road, or on the go!

- **30-Minute Replay: An Industry First**
  Pause and replay up to 30 minutes of live broadcast.

- **InfoExtras: An Industry First**
  Personal stock ticker, sports ticker, clock, and more.
- **Built-In Wireless Modulator**
  Turns any FM stereo into an XM Radio.
- **TuneSelect**
  Finds your favorite artists and songs.

Delphi XM Roady2
MSRP: $129.99
www.delphi.com

The Smallest Satellite Receiver Available

Experience the thrill of satellite radio with the Delphi XM Roady2 satellite radio receiver. This ultra-small unit is easily transportable and works with all types of stereos with its built-in wireless FM modulator.

It also features a convenient scroll wheel, 30 channel presets, and 10 direct-entry buttons.

The two-line display offers artist, track, and channel information, and it has seven selectable background colors to get the look that suits your style.

More Delphi XM Roady2 features:

- Built-in wireless FM modulator
- Wirelessly transmits XM to any FM stereo
- Choose from 12 FM frequencies
- TuneSelect

- Roady2 will alert you when a favorite song starts playing on another channel
- Personalized stock ticker
- Scroll through up to 20 stock symbols while listening to your favorite channel
- Mini-micro antenna, the smallest satellite radio antenna available
- Seven backlit display colors: red, night blue, green, pink, purple, sky blue, or orange
- Versatile mounting options

XM SATELLITE RADIO

Rosen G10 All-In-One
MSRP: $1,799.99
www.rosenentertainment.com

Award-Winning Design

Rosen Entertainment Systems has set May 2005 as the launch date for their latest innovation, the designer-styled G10 All-In-One overhead entertainment system with 25 integrated video games.

Proclaimed as the next generation of Rosen's integrated gaming strategy, the G10 has 25 video games built into the system's electronic circuit boards and includes a wireless game controller that provides instant game commands versus the much slower wired controllers. This patent-pending and revolutionary mobile-video advancement provides an enhanced entertainment experience for consumers.

The G10's gaming feature was designed to deliver a wider selection of exciting video games that could be played in 10 minutes or less and provide an alternative to movies during travel or trips to the soccer field.

The G10's games are more graphically intense than the A10's and represent the next phase of integrated gaming from Rosen, the pioneer of overhead mobile video.

Features include:

- 10.2" WVGA wide-screen 16:9 LCD display with off-axis viewing
- Integrated DVD/CD/MP3 player
- Integrated Dual-Zone controller for two screen zones and up to four source units
- 16-channel wireless stereo FM modulator
- Front seat IR (infrared) repeater allows parents to control the system with the wireless remote control
- Remote-activated dampened screen deployment and dome light control
- Simulated surround sound and audio overdrive
- Two-channel IR transmitter
- Adjustable screen angle memory
- Automatic day to night brightness settings
- Two IR headphones
- Dome lights with factory-friendly electronic circuitry
- Voltage-sensing circuitry that monitors the vehicle's battery and shuts off the video system when low voltage is detected
- Self-diagnostic monitoring
- Universal install shroud
- All cables and power harnesses
- Rosen-exclusive Limited Lifetime Warranty
- Available in neutral (CV10290N) and gray (CV10290G)

ROSEN
ENTERTAINMENT SYSTEMS

ARCHOS Gmini XS200
MSRP: $249.95
www.archos.com

Rip, Rock & Roll

ARCHOS announces the new Gmini XS200, an extremely small, 20GB, hard drive-based audio player with a competitively low price. The ultra-compact music player is just as small as most 4GB audio players available today (it measures only 2.9 inches high x 2.3 inches wide x 0.75 inches deep and weighs a mere 4.3 ounces), yet it offers a huge capacity able to hold up to 300 hours of music. That's around 5000 songs! Geared towards the young, urban market, the Gmini XS200 features a large 2-inch gray-scale LCD screen with a sleek, dark gray metallic cover.

Small Size, Big Benefits

The Gmini XS200 expands on ARCHOS' successful line of hard-drive based audio players with a new entry level, small-size, large-capacity device that allows you to:
- Play MP3, WMA (Windows Media Audio), and WAV music files
- Connect to your stereo to play music (with optional standard audio cable)
- Quickly organize songs with the ARCHOS ARCLibrary and view by artist, genre, title, and year
- Rename, move, copy, and delete files and folders or make playlists on the move without a computer thanks to the ARCHOS Browser
- Easily navigate menus using the large and intuitive two-inch, grayscale LCD
- Friendly GUI (graphical user interface) with icons
- USB 2.0 high-speed interface to download and store data files from a PC or Mac

ARCHOS

Portable Entertainment Anytime, Anywhere

The ARCHOS Pocket Video Recorder AV400 series is the ultimate handheld digital video recorder that offers TV recording and a portable home-entertainment center in one pocket-sized device.

The AV420 experience starts in the living room, where you can record TV shows and movies directly from a TV, VCR, or cable/satellite receiver with a convenient one-time set-up TV Cradle.

But entertainment enjoyment goes beyond your home. When you're on the go, you can watch videos and view photos on the large LCD, listen to and record music, and transfer photos from your digital camera and files from your PC.

Features include:

- Record up to 80 hours of TV programs and video content from a TV, VCR, or cable/satellite receiver using the TV cradle
- Program recordings using the Recording Scheduler, which directly controls the VCR or set-top box tuner
- Store and watch up to 40 full-length movies
- Enjoy up to 3-1/2 hours of video playback on the color LCD while on the go
- Download, transfer, and record up to 300 hours of music
- Store and view up to 200,000 JPEG photos
- Play MP3, WMA (Windows Media Audio; including protected files), and WAV music files

- Listen to and record off the radio (with optional FM Radio & Remote Control)
- Download and store files from a PC

Optional accessories:

- 4-1 CompactFlash Adaptor for transferring photos from SM (SmartMedia), SD (Secure Digital), MMC (MultiMediaCard), and MS (Memory Stick) memory cards of digital cameras
- FM Radio & Remote Control for FM listening and recording while on the go. Also features a built-in microphone for voice recording

- 5-Volt car adaptor for recharging the AV420 while in the car
- Carrying case for easy transportation
- Traveler Audio Video Kit for video recording and playback when on the go
- Additional power adaptor

ARCHOS

music & movies

BY KATIE SOMMER
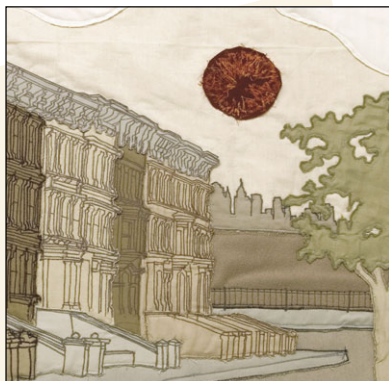
"I'm Wide Awake, It's Morning"

Bright Eyes
$11.98 • Available: Now
Hometown hero Bright Eyes hasn't released a full-length album in over two years (not counting the April 2004 Neva Dinova split "One Jug Of Wine, Two Vessels"), and Saddle Creek Records blessed us with two in January. "I'm Wide Awake, It's Morning" is an all-acoustic record with guest musicians such as Emmylou Harris (on three songs) and Jim James (from My Morning Jacket). The guests balance Conor's oft-morose lyrics nicely. "I'm Wide Awake, It's Morning" was hailed as one of NPR's most anticipated albums of 2005, but only time will tell if that anticipation was worth it. Considering it debuted on Billboard's Top 200 chart at No. 10, we think there's a good chance it will.

> "If you don't live music, it won't come out of your horn."
>
> —Charlie Parker

"Digital Ash In A Digital Urn"

Bright Eyes
$11.98 • Available: Now
We don't normally think of Conor and synthesizers as one, but "Digital Ash" is decidedly the more produced of these two dichotomous albums. (The transparent title gives it away.) Conor is 24 now, and it's only fitting that his music matures, also.

"South Of The Border"

Herb Alpert & The Tijuana Brass
$13.98 • Available: Now
The name Herb Alpert reminds different people of different things, from polyester suits to seductive moonlight dancing, and this remastered best seller also features a little of everything. Hear contemporary hit covers, as well as a few Latin classics, such as our favorite, "Angelito."

"Guero"

Beck
$13.98 • Available: March 29
Anything shrouded in such secrecy is worth listening to. Maybe. This will be Beck's eighth album, and he'll supposedly be going full circle back to his funk-rock roots with the help of The White Stripes' Jack White on "Go It Alone."
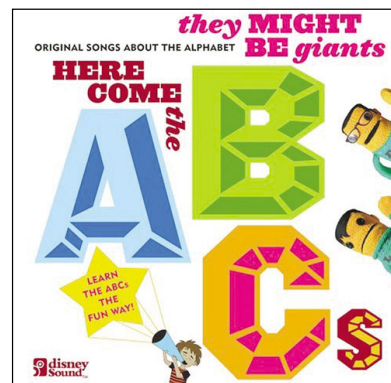
"Here Come The ABCs"

They Might Be Giants
$12.98 • Available: Now
TMBG has done kids' albums before, and this newest release features 25 songs relating to the alphabet, such as "C Is For Conifers." The Two Johns will also perform free, family-oriented shows, featuring songs from the CD, in a dozen cities.

m o v i e s

BY SAMIT G. CHOUDHURI

"Ray"

$29.95 • Available: Now

One of the most critically acclaimed films of last year was "Ray." Jamie Foxx's performance as a young Ray Charles earned him an Academy Award nomination for best Actor In A Leading Role. After spending a few minutes watching the film, Foxx merges with Ray Charles, and you forget you're watching a movie. We all know that the late Ray Charles Robinson was an incredibly talented R&B musician (sadly, he passed away last year), but this film documents his difficult rise to international stardom and doesn't sugarcoat the many less wholesome periods of his journey to the top.

"Chariots Of Fire" (Two-Disc Special Edition)

$26.95 • Available: Now

It has been nearly a quarter century since "Chariots Of Fire" came from out of nowhere to scoop up the Academy Award for Best Picture in 1981. Not many expected that a 10-second race between two British competitors at the 1924 Olympics would so adequately demonstrate what truly drives the human spirit. People have been waiting years for a widescreen version of this movie to give the film full justice in the home-theatre arena (an embarrassingly feeble full-screen DVD release was issued in 1997, but is best forgotten). Listening to Vangelis' "Titles" after watching the film will stir you to the depths of your soul.

"The Motorcycle Diaries"

$29.95 • Available: Now

Long before Ernesto "Che" Guevara led the Cuban revolution alongside Fidel Castro, he and his buddy Alberto Granado went on an eight-month road trip in South America in 1951 and 1952. Two young men went looking for some adventure but discovered far more. Director Walter Salles adapted the film from Guevara's memoirs and Granado's diaries and has crafted a movie that opts to minimize politics and to spend more time on the humanity of two now-near-mythological characters.

"I ♥ Huckabees" (Two-Disc Special Edition)

$39.95 • Available: Now

The ♥ symbol in the title means "heart," so the film is called "I Heart Huckabees." You now at least know what to call it. This romantic comedy is bold and in your face, but it's also obtuse in a way that doesn't quite work as well as in "Eternal Sunshine Of The Spotless Mind." At times the intentionally odd "I ♥ Huckabees" is downright incoherent, but for some viewers, the incoherence only adds to its charm. And lest you think this is a fly-by-night film, know that the cast features Dustin Hoffman, Jude Law, Lily Tomlin, Mark Wahlberg, Naomi Watts, and Jason Schwartzman (in his strongest role since "Rushmore"). The movie presents some pretty big philosophical ideas, intermixed with some big flaws. Go in forewarned, and you might actually enjoy it. It's nice to step away from the conventional every now and again.

other notable releases

"Donnie Darko" (The Director's Cut): This psychological thriller starring Jake Gyllenhaal has attained cult status since its release shortly after the 9/11 tragedy. The movie was whittled down to 113 minutes for a theatrical release, but the new DVD release returns 20 minutes of supplemental footage back into the film. Watch the film several times to truly appreciate the mentally meandering trip of eccentricity that you will experience. Rated R.

"The SpongeBob SquarePants Movie": After the film noted above, it's time to spend some time enjoying good-natured silliness with the young ones. This TV show is popular with kids and adults alike, but the movie is really best suited for previous viewers of the TV show and the children. Be sure to listen for the voices of Scarlett Johansson and Alec Baldwin while the kids roll in glee. Rated PG.

games . . .

for you and the people in your life

BY VINCE COGLEY

GameCube

Nintendo DS

Donkey Kong Jungle Beat

Nintendo's Donkey Kong Jungle Beat puts a new spin on a proven favorite. This side-scroller with innovation uses a set of DK Bongos (sold separately; $29.99) to control the happy-go-lucky simian along his journey. According to the beat you lay down on the DK Bongos, Donkey Kong will respond with a variety of actions, such as running, jumping, and punching.

Mortal Kombat: Deception

Midway's Mortal Kombat took fighting games to the next level by ratcheting up the gore factor. Mortal Kombat: Deception picks up where its predecessor, Mortal Kombat: Deadly Alliance, left off, but it features a more robust storyline and enough bonuses and extra content to greatly enhance its replay value. One clever game is Chess Kombat, which puts a violent spin on your typical chess match.

Pokémon Dash

Almost everyone with an elementary school-aged child has at least a passing familiarity with Nintendo's Pokémon series. Pokémon Dash is one of the first games for Nintendo's new DS handheld gaming console, and you use the stylus to pilot Pikachu through the game's courses. The racing game centers on Grand Prix mode, which consists of 25 courses and multiple difficulty levels.

ESRB Rating: Pending (RP)
$39.99
Nintendo
www.nintendo.com

ESRB Rating: (M)ature
$49.99
Midway
www.mortalkombatdeception.com

ESRB Rating: (E)veryone
$34.99
Nintendo
www.nintendo.com

PlayStation 2

Devil May Cry 3: Dante's Awakening

The third installment of Capcom's Devil May Cry continues the adventures of Dante, the series' sword-wielding, gun-toting antihero that fans will undoubtedly be familiar with. The game pits Dante against his brother, Vergil, and introduces a supporting cast of new characters. DMC 3 features a new class system that customizes Dante according to one of several fighting styles, such as Trickster, Gunslinger, or Swordsmaster.

ESRB Rating: (M)ature
$49.99
Capcom
www.capcom.com

Karaoke Revolution Volume 3

Konami's Karaoke Revolution Volume 3 can help you be the life of the party if you have the vocal chords to keep up with the game's eclectic mix of tunes. With songs ranging from "Beat It" to "Oops! . . . I Did It Again," Karaoke Revolution Volume 3 will surely offer something for even the most discriminating pop diva wannabe.

ESRB Rating: (E)veryone
$39.99
Konami
www.konami.com

PlayStation Portable

Tiger Woods PGA Tour

Take to the links on the PlayStation Portable version of Tiger Woods' signature golf game. EA's Tiger Woods PGA Tour features classic courses, such as Sherwood Country Club, Pebble Beach, and Paradise Cove, and classic opponents, such as Arnold Palmer, Vijay Singh, and Tiger Woods himself. Multiple players with PSPs can wirelessly compete against each other for bragging rights. Beverage cart not included.

ESRB Rating: (E)veryone
$49.99
Electronic Arts
www.easports.com

Metal Gear Acid

Konami's Metal Gear Acid continues the exploits of Solid Snake but departs from the traditional gameplay fans of the series are familiar with. The game uses a card-based battle system and focuses on strategy as much as stealth. Although Hideo Kojima, who directed the Metal Gear Solid series, passed the reins to a different director (Shinta Nojiri), many familiar faces from the series will have cameo roles in this adventure.

ESRB Rating: Pending (RP)
$49.99
Konami
www.konami.com

WWE WrestleMania 21

WrestleMania is the annual professional wrestling event that put Vince McMahon's organization, now World Wrestling Entertainment, on the map. THQ strategically planned the WWE WrestleMania 21 release close to the live pay-per-view event. The game puts you in the ring with the WWE's elite grapplers. WWE WrestleMania 21 also lets you take command of the WWE's female starlets.

ESRB Rating: (T)een
$49.99
THQ
www.thq.com

Doom 3

Scarier than most movies, Doom 3 is sure to make you jump out of your skin more than once. The sci-fi space shooter from id Software was one of the top-selling PC games of 2004, and it makes its console debut on the Xbox in early April. Play the role of an unnamed, beleaguered Marine who must single-handedly fight off hordes of monsters; this one's definitely not for the kids.

ESRB Rating: (M)ature
$49.99
id Software
www.doom3.com

Multiplatform

Tom Clancy's Splinter Cell: Chaos Theory

Sam Fisher returns in Tom Clancy's latest game from Ubisoft. Splinter Cell: Chaos Theory includes the same stealth action as previous games, and the popular Versus Mode from Splinter Cell: Pandora Tomorrow returns on the Xbox and PlayStation 2 versions. In Cooperative Stealth Mode, two players can conquer missions together. Like earlier Splinter Cell games, Chaos Theory is for mature audiences.

ESRB Rating: (M)ature
$49.99
Ubisoft
www.splintercell3.com

EA MVP Baseball 2005

Because rival game developer Take-Two Studios recently acquired the exclusive rights to produce Major League Baseball video games, this could be the last MLB game from EA for a long time. Added features include The Hitter's Eye, which helps batters see pitches with greater accuracy, and the Precision Pitch Meter, which lets pitchers throw perfect strikes. The Owner Mode lets you create your own dynasty.

ESRB Rating: (E)veryone
$49.95
Electronic Arts
www.easports.com

Brothers In Arms: Road To Hill 30

Follow Sergeant Matt Baker as he undertakes an adventure with striking similarities to Steven Spielberg's World War II masterpiece, "Saving Private Ryan." Brothers In Arms: Road To Hill 30 boasts a cast of more than 20 unique characters, historically accurate battlefields, equipment and events gathered from Army Signal Corps photos, Aerial Reconnaissance Imagery, and eyewitness accounts.

ESRB Rating: (M)ature
$49.99
Ubisoft
www.brothersinarmsgame.com

. . . & gifts

## on the lighter side of technology

BY MARTY SEMS

Saitek No Limit Texas Hold 'Em Handheld Poker

The phrase "Texas Hold 'Em" seems to be this year's "low-carb." That is, it's on everybody's lips, yet it's often followed by "What's that?" Find out what the fuss is about with Saitek's new handheld electronic poker game (www.saitekusa.com). With a big screen shaped like a poker table, the game provides up to three computer opponents with different levels of skill. Sound effects provide a realistic touch, but you'll have to provide the poker atmosphere yourself. At $49.95, this handheld is a great gift for a novice card player. It's definitely a cheaper education than learning the game the hard way.
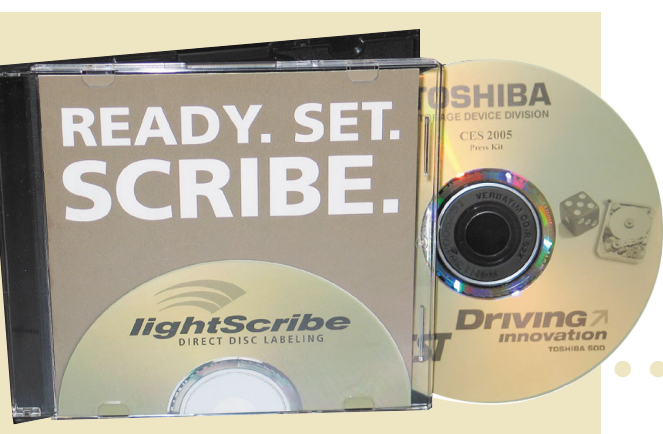
TDK LightScribe Media

Finally! We've dreamed of something like this for years, and now it's here. HP's LightScribe is a new DVD and CD labeling technology that lets you burn to the disc's data side, flip it over, and burn a label into its top side. This means no more sticky labels nor messy markers—just crisp, professional-looking text and images that won't rub off. You'll need a LightScribe-compatible drive and media, however. According to TDK, the new LightScribe 8X DVD+Rs should cost $1.69 each when they become available, and its 52X CD-Rs should be $1.19 apiece (www.tdk.com).

ce lite
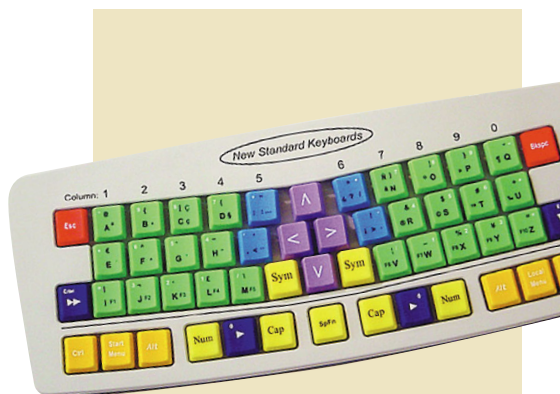
New Standard Keyboard

It's funky. It's festive. It's the New Standard alphabetical USB keyboard ($69.95; www.newstandardkey boards.com). This probably won't interest anyone with typing skills based on keyboards with QWERTY or Dvorak layouts, but it certainly makes sense for the rest of us. One-finger pecking doesn't involve as much hunting because the 53 keys are arranged in alphabetical order and are color-coded for ease of use. Also, typing becomes easier thanks to central SHIFT keys and an ergonomic split. Kids will love the colors; older users won't feel daunted by scads of unnecessary keys. Look for the NSK in April.

Robopax BabySitter

Don't feel guilty. Sure, it feels like cheating to let a gadget rock a baby to sleep, but you'll feel better when you avoid having to drive the little cherub around for hours or set her car seat on a running clothes dryer until she falls asleep. Consider the Robopax BabySitter (about $130; www.robopax.com), an update of those wind-up swings our parents plopped us into. Park the child's stroller on it, turn it on, and put your feet up. Manufacturer Dream Technology Limited is a U.K. company, but it's taking preorders from U.S. buyers on its Web site. Shipping should start in May.

Edge Digital Picture Frame Plus MP3 Player

Hey, cool! Here's a gift you'll probably want to keep for yourself. You've probably seen other digital photo frames that display slide shows of your pictures, but this one from Edge ($228.95; www.edgetech corp.com) can play MP3 files along with them. The Digital Picture Frame comes with a remote control and can grab photos from almost any type of flash memory card, including the IBM Microdrive. Family photos and the Family Stone? Or Van Gogh and the Go-Gos? It's up to you.

Tube Surround TS-6.0

Speaking of the Go-Gos, and the 1980s in general, these headphones look like a cross between Deely-Bobbers and Olivia Newton-John's "Let's Get Physical" headband. The TS-6.0 from Tube Surround ($189; www.tubesurround.com) may look quirky, but don't let that fool you. It's a surround-sound set of headphones ready to rock your headbone. Sound clarity is reportedly outstanding whether you're listening to multichannel DVD Audio or just vegging with your favorite iPod playlist.

Migo 512MB Smart Watch

Yugo was a car, sort of, and the name iGo would probably bring a cease-and-desist letter from Apple. Thus, the Pidgin English name Migo. Migo is software that lets you take your computer with you . . . or at least the parts that matter, such as your Outlook email, Internet Explorer Favorites, and saved documents. And now Migo comes built into a watch with 512MB of flash memory and a USB 2.0 connector ($229.95; www.4migo.com). Plug your Migo Smart Watch into a Windows computer where'er you may wander, and 'twill be as if you brought your PC along. At first blush, this sounds like a security fiasco waiting to happen, but Migo says that its engineering team is working on compatibility with browsers and email clients other than Internet Explorer and Outlook. Whew.

Blue Snowball

It doesn't take much effort to pick out the accessories that were obviously made to look good next to an iPod. Here's a case in point. The Snowball is a $139 microphone from Blue (available this spring; www.bluemic.com). It's USB-compatible, so it's a natural for musicians who like to compose and arrange using their computers. You can set the mic to offer robust vocal sound, airy, detailed sound, or both to let you record loud sound sources.


NeatReceipts

If you or someone you love travels a lot on business or has to itemize expenses for any other reason, NeatReceipts could be a godsend (www.neatreceipts.com). It's a scanner that examines paper receipts and then uses optical character recognition to extract relevant text and numbers. Next, it automatically plugs the data into an expense report, which you can export into Quicken, Money, and other financial apps. NeatReceipts' software only works with Windows thus far, but its $249.95 price compares favorably to the cost of hired help.

Retro

the history
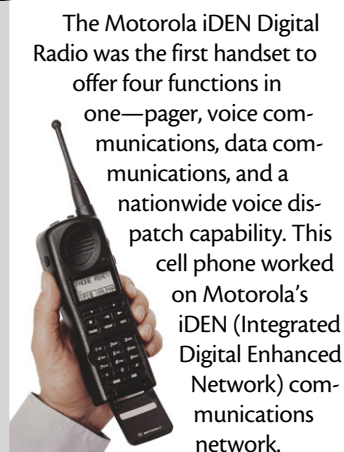## of cell phones

1983

Motorola DynaTAC 8000X
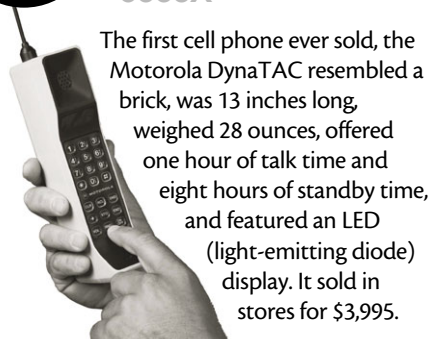
The first cell phone ever sold, the Motorola DynaTAC resembled a brick, was 13 inches long, weighed 28 ounces, offered one hour of talk time and eight hours of standby time, and featured an LED (light-emitting diode) display. It sold in stores for $3,995.

1994

Motorola iDEN Digital Radio

The Motorola iDEN Digital Radio was the first handset to offer four functions in one—pager, voice communications, data communications, and a nationwide voice dispatch capability. This cell phone worked on Motorola's iDEN (Integrated Digital Enhanced Network) communications network.

1996

Motorola StarTAC

Again leading the industry, Motorola launched the StarTAC and, with it, the clamshell design. The wearable StarTAC featured a cover that flipped upward to reveal a keypad and to position the integrated speaker by the user's ear. It was comparable to the size of a pager.

1989

Motorola MicroTAC

Motorola's MicroTAC was the first flip phone. The keypad's cover and the integrated microphone flipped down, revealing the keypad. The smallest and lightest phone at the time, the MicroTAC measured 6 ¾ inches high x 2 ¼ inches wide x 1 ¼ inches deep and weighed 12.3 ounces. It sold for between $2,495 and $3,495.

1992

Nokia 1011

When other cell phones were analog devices, Nokia launched the first handheld cell phone to use digital GSM (Global System for Mobile Communications) network technology—the 1011. A GSM phone uses a removable SIM (Subscriber Identity Module) card to connect to the cell phone carrier's voice or data network.

scope

2005 Siemens SK65

Siemens is selling another new style of cell phone, a cross-to-type model named the SK65. As of press time, there are no plans to release the SK65 in the U.S., but you will be able to find it in some countries in Europe, Asia, and Latin America. The bottom portion rotates to reveal a QWERTY keyboard for sending email or text messages.

1998 Nokia 5110 & 9110

Setting a cell phone fashion standard, Nokia introduced user-changeable colored faceplates with the 5110. The Xpress-on Covers snapped on or off. At the same time, Digital Camera Connectivity software let Nokia's 9110 receive photos via infrared from digital cameras.

2003 Sony Ericsson SO505i

The world's first 1.3MP (megapixel) camera phone was the Sony Ericsson SO505i. It featured a 16X digital zoom, a rotating screen design, a color display capable of showing more than 262,000 colors, and a slot for a removable Memory Stick Duo memory card.

2001 Motorola Timeport 7382i

The first cell phone in North America to support GPRS, or General Packet Radio Service, was Motorola's Timeport 7382i. GPRS is a technology for sending and receiving data in small, digital packets of information with a GSM cell phone, and it enables the cell phone to have an always-on Internet connection.

2003 Siemens SL56 & Slider V5 *MTV Edition

The slider-style cell phone debuted in the United States in 2003. Among the pioneers in this category were Siemens, which sold the SL56, and Kyocera, which joined with Virgin Mobile and MTV Networks to sell the Slider V5 *MTV Edition.

What's Next?

One of the latest innovations is a cell phone that can receive over-the-air digital TV broadcasts using a built-in DMB (Digital Multimedia Broadcast) antenna. An early example is LG's model SB100, which is expected to be available in South Korea this spring. ⒸⒺ

BY ROBERT E. CALEM

exit

Kitchen CE

For many people, food is much more than nourishment. Many of us strive to create meals that family and guests want to linger over, laughing and sharing and bonding. And although we take great pains to make the perfect beef tenderloin, we don't want to spend all day in the kitchen doing it. Here are some kitchen devices that are so high tech, they might just perfect your crème brulée.

PROGRAMMABLE TONGS
WWW.POLDER.COM

PERFECT FOR FOLKS WHO LOVE TO BBQ, THESE TONGS CONTAIN A TEMPERATURE PROBE, SO YOU CAN TURN YOUR FOOD AND GAUGE THE TEMPERATURE SIMULTANEOUSLY.

ICEBOX FlipScreen KITCHEN ENTERTAINMENT
WWW.YINYANGHOME.COM

WE LOVE ANYTHING THAT GOES UNDER THE CUPBOARDS, ESPECIALLY WHEN IT'S THIS ELEGANT SYSTEM THAT WILL SURELY MAKE YOUR KITCHEN A MEDIA HUB.

BONJOUR CULINARY LASER THERMOMETER
WWW.THEGADGETSOURCE.COM

WE ADMIT IT; THIS THING SCARED US AT FIRST. BUT WE CHANGED OUR MINDS ONCE WE SAW HOW THE THERMOMETER USES INFRARED TECHNOLOGY TO INSTANTLY READ SURFACE TEMPERATURE, SANS TOUCHING THE FOOD OR DRINK.

L'EQUIP R.P.M. BLENDER
WWW.TABLETOOLS.COM

THIS BLENDER HAS A VARIABLE SPEED KNOB THAT LETS YOU TWEAK YOUR BLENDING, AND YOU CAN VIEW THE RPMS ON THE TACHOMETER.

COUNTERTOP DIGITAL WINE COOLER
WWW.SMARTHOME.COM

PROGRAM THIS COOLER FROM 44 DEGREES TO 64 DEGREES TO KEEP YOUR WINE AT THE PERFECT TEMPERATURE. THE DARK-TINTED DOOR PREVENTS LIGHT FROM SPOILING YOUR SWEET (OR DRY) NECTAR.

COMBINATION MICROWAVE & TOASTER
WWW.LGAPPLIANCES.COM

EKE OUT SEVERAL INCHES MORE COUNTER SPACE BY BUYING TWO-IN-ONE APPLIANCES, SUCH AS THIS MICROWAVE AND TOASTER UNIT FROM LG.

SMART PAN 10" DIGITAL SKILLET
WWW.DIGITALCOOKWAREINC.COM

THIS ANODIZED WONDER ENSURES THAT YOUR FOOD IS COOKED AT THE RIGHT TEMPERATURE, WHILE SIMULTANEOUSLY REDUCING THE RISK OF COOKING FIRES.

ELECTRONIC WINE THERMOMETER
WWW.THEGADGETSOURCE.COM

LOOK ALIVE, OENOPHILES. PROGRAM THIS DEVICE TO ONE OF 19 WINE SETTINGS TO ENSURE YOU SERVE YOUR VINO AT THE RIGHT TEMPERATURE.

HANDS-FREE SOAP & LOTION DISPENSER
WWW.SMARTHOME.COM

THIS MOTION-ACTIVATED DISPENSER PROVIDES A SANITARY WAY FOR FAMILIES TO WASH THEIR HANDS. THE CHEF OF THE HOUSE, ESPECIALLY, WILL LOVE IT.

TV REFRIGERATOR
WWW.LGAPPLIANCES.COM

LG'S INTEGRATED TV, RADIO, AND REFRIGERATOR IS SURE TO MAKE YOUR KITCHEN THE GATHERING HUB OF YOUR HOME. THE FRIDGE ALSO HAS ELECTRONIC TEMPERATURE CONTROLS FOR ZONE COOLING.

JURA CAPRESSO IMPRESSA
WWW.WHOLELATTELOVE.COM

THIS ESPRESSO MACHINE IS INDEED "SUPER AUTOMATIC" (AS THE COMPANY CLAIMS): IT GRINDS, TAPS, PREINFUSES, AND BREWS, AS WELL AS GETS RID OF THE USED GRINDS AND RINSES ITSELF.

Great theater deserves a great setting.

The beauty and warmth of real maple or cherry come to life in the distinctive style of new Woodbrook furniture from Sanus.
The fine lines provide a beautifully functional setting for your audio and video components, with convection cooling engineered
into the cabinet design. Choose from a variety of door and drawer options. See Woodbrook furniture and more
at www.sanus.com. Come and browse through the woods.

SANUS|SYSTEMS

THE UNION OF FORM AND FUNCTION

800.359.5520   www.sanus.com

Simply Astonishing. Astonishingly Simple. Avidea.™

Avidea is the astounding audio and video home theater experience without the complexity. So state-of-the-art, yet so extraordinarily easy to connect and operate, Avidea is all the fun with none of the frustration.

www.BostonAcoustics.com

And, since sound always drives the image, prepare to be stunned by The Boston Sound.™ Movie soundtracks have incredible power and detail. CDs, AM/FM, even MP3s sound truer to

the original performance.

The Avidea 770 System simply allows you to get the most out of home theater no matter what kind of TV you own. Visit bostonacoustics.com/idea to learn more about Avidea 770 and its authorized dealers.

Boston
Boston Acoustics

Your Sound Solution™